

N83447.AR.000631  
NAS FORT WORTH  
5090.3a

FINAL MANAGEMENT ACTION PLAN NAS FORT WORTH TX  
1/1/2002  
UNIVERSAL TECHNOLOGIES



**NAVAL AIR STATION  
FORT WORTH JRB  
CARSWELL FIELD  
TEXAS**

---

**ADMINISTRATIVE RECORD  
COVER SHEET**

AR File Number 715

# Final Management Action Plan

Naval Air Station Joint Reserve Base  
Fort Worth, Texas



Prepared for  
U.S. Air Force Center for Environmental Excellence  
Brooks AFB, Texas

January 2002



**UNIVERSE TECHNOLOGIES, INC.**  
Engineering and Scientific Solutions



**UNIVERSE TECHNOLOGIES, INC.**  
**Engineering and Scientific Solutions**

715 2

*Client Retention Is Our  
Highest Priority And  
Ultimate Goal*

28 January 2002

Mr. Don Ficklen  
HQ AFCEE/ERD  
3207 North Road  
Brooks AFB, TX 78235-5363

Subject: AFCEE Contract No. F41624-98-D-8501, TO-0159, TA-000, Statement of Work Paragraph 5.3.1.3, CDRL A001, Final Management Action Plan, Naval Air Station Fort Worth Joint Reserve Base, Texas.

Deliverable #: 15900.497

Dear Mr. Ficklen:

Per your request of 7 January 2002, Universe Technologies, Inc. (UNITEC) was tasked to prepare a Final Management Action Plan.

UNITEC appreciates the opportunity to provide technical support to HQ AFCEE/ERD. Please contact me at (210) 531-0011 if you have any questions concerning this deliverable.

Sincerely,

Audrie Medina  
Project Manager

Attachment(s)

cc: AFCEE/ERC (Ms. Carol McCollum) w/o attachment  
HSW/PKVAA (Mr. Ralph Urias) w/o attachment  
UNITEC File

**FINAL MANAGEMENT ACTION PLAN  
FOR THE  
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE**

U.S. Air Force Center for Environmental Excellence  
Brooks AFB, Texas

January 2002

## TABLE OF CONTENTS

	Page
1.0 INTRODUCTION.....	1-1
1.1 BACKGROUND .....	1-2
1.2 REPORT ORGANIZATION .....	1-2
1.3 ENVIRONMENTAL RESTORATION PROGRAM OBJECTIVES .....	1-5
1.4 MAP PURPOSE, UPDATES, AND DISTRIBUTION .....	1-6
1.5 NAS FORT WORTH JRB ENVIRONMENTAL RESTORATION PROJECT TEAMS AND RESTORATION ADVISORY BOARD .....	1-6
1.6 BRIEF DESCRIPTION OF ENVIRONMENTAL SETTING .....	1-8
1.6.1 Geography, Geology, Hydrogeology, Climate .....	1-8
1.6.2 Natural and Cultural Resources .....	1-12
1.7 BRIEF HISTORY OF INSTALLATION AND CURRENT MISSION...	1-12
2.0 ENVIRONMENTAL RESTORATION PROGRAM STATUS.....	2-1
2.1 RESTORATION PROGRAM STATUS .....	2-1
2.1.1 Summary of Regulatory Agreements.....	2-1
2.1.1.1 Texas Risk Reduction Program/TNRCC Risk Reduction Rules RCRA Corrective Action Process .....	2-1
2.1.1.2 Defense Environmental Research Program/Memorandum of Agreements.....	2-5
2.1.2 IRP History/Status of Restoration Sites and Areas of Concern .....	2-7
2.1.2.1 Restoration Cost Data .....	2-10
2.1.2.2 Soil and Groundwater Contamination Map .....	2-23
2.2 COMMUNITY AND REGULATORY INVOLVEMENT STATUS .....	2-26 <sup>25</sup>
2.2.1 Community Involvement Summary .....	2-26 <sup>25</sup>
2.2.2 Regulatory Involvement Status .....	2-28 <sup>25</sup>
3.0 ENVIRONMENTAL PROGRAM SITE CLOSEOUT STRATEGY .....	3-1
3.1 REQUIREMENTS SUMMARY FOR SITE CLOSEOUT .....	3-1
3.1.1 Planned and Ongoing Investigations.....	3-1
3.1.2 Planned and Ongoing Response/Removal and Interim Actions .....	3-3
3.1.3 Long-Term Monitoring and Site Closeout .....	3-3
3.2 SUMMARY OF FUNDING REQUIREMENTS .....	3-5
3.3 OPTIMIZATION APPROACH FOR SITE CLOSEOUT .....	3-6
3.3.1 Short-Term Objectives (FY2001 – FY2006).....	3-6
3.3.2 Long-Term Objectives (FY2002 – Program Completion .....	3-12
3.3.3 Program Management Strategy.....	3-12
3.3.3.1 Developing and Reviewing the Program Strategy .....	3-12
3.3.3.2 Community Involvement .....	3-12
3.3.3.3 Operable Unit/Site Strategy .....	3-13
3.3.3.4 Expedited and Innovative Contracting Procedures .....	3-14
3.3.3.5 Standard Approaches to Remedy Selection .....	3-14

## TABLE OF CONTENTS

	Page
3 3.3.6 Land Use Consideration in Risk Assessment and Restoration .	3-14
3.3.3.7 Interaction With Compliance Programs.....	3-14
4.0 ENVIRONMENTAL RESTORATION MASTER SCHEDULE ..	4-1
4.1 ENVIRONMENTAL RESTORATION PROGRAM....	4-1
4.1.1 Response Schedules.....	4-1
4.2 RESTORATION PROJECT TEAMS AND RESTORATION ADVISORY BOARD MEETING SCHEDULES.....	4-4
5.0 TECHNICAL AND OTHER ISSUES TO BE RESOLVED.....	5-1
5.1 DATA INTEGRATION AND MANAGEMENT .....	5-1
5.1.1 Action Items.....	5-1
5.1.2 Rationale .....	5-1
5.1.3 Status/Strategy .....	5-2
5.2 BACKGROUND LEVELS.....	5-2
5.2.1 Action Items.....	5-2
5.2.2 Rationale . .....	5-2
5.2.3 Status/Strategy .....	5-2
5.3 RELATIVE RISK EVALUATION AND CLEANUP STANDARDS ..	5-2
5.3.1 Rationale .....	5-2
5.3.2 Status/Strategy .....	5-3
5.4 INTERIM MONITORING OF GROUNDWATER AND SURFACE WATER .....	5-3
5.5 INITIATIVES FOR ACCELERATING CLEANUP.....	5-3
5.6 REMEDIAL ACTIONS.....	5-4
5.7 REVIEW OF SELECTED TECHNOLOGIES FOR APPLICATION OF EXPEDITED SOLUTIONS.....	5-4
5 8 IDENTIFICATION OF CLEAN PROPERTIES .....	5-5
5.9 PARTNERING (USING INNOVATIVE MANAGEMENT, COORDINATION, AND COMMUNICATION TECHNIQUES) .....	5-5
6.0 REFERENCES .....	7-1
APPENDIX A AGREEMENTS BETWEEN THE AFCEE AND AFBCA AND BETWEEN THE U.S. AIR FORCE AND U.S. NAVY	
APPENDIX B AFCEE PROJECTED COSTS TO COMPLETE	
APPENDIX C INSTALLATION ENVIRONMENTAL RESTORATION DELIVERABLES	
APPENDIX D DECISION DOCUMENTS	

## LIST OF TABLES

	<b>Page</b>
Table 1.1	BCT and RPM Members ..... 1-7
Table 1.2	Restoration Advisory Board Members..... 1-8
Table 1.3	Parcel Designations..... 1-14
Table 1.4	Source Information for SWMUs and AOCs ..... 1-19
Table 1.4	History of Installation Operations..... 1-43
Table 2.1	Description and Corrective Action Status of SWMUs and AOCs ..... 2-11
Table 2.2	Categorical Listing of SWMUs/AOCs by Corrective Action Status..... 2-18
Table 3.1	Planned and Ongoing Investigations..... 3-2
Table 3.2	Planned and Ongoing Response/Removal and Interim Actions ..... 3-4
Table 3.3	Relative Risk Designation for SWMUs and AOCs... 3-7
Table 4.1	Master Schedule..... 4-2
Table 4.2	BCT/RPM Team Meeting Schedule ..... 4-4



## LIST OF FIGURES

	<b>Page</b>
Figure 1.1 Location Map .....	1-3
Figure 1.2 Topographic Map of NAS Fort Worth JRB and Vicinity.....	1-9
Figure 1.3 Stratigraphic Column Correlating Hydrogeologic Units and Geologic Units .	1-11
Figure 1.4 Parcel Locations.. ..	1-16
Figure 2.1 Former Carswell Air Force Base SWMU/AOC Locations.....	2-21
Figure 2.2 Off-Site Weapons Storage Area SWMU Locations.....	2-22
Figure 2.3 Groundwater Contamination Map .....	2-24
Figure 3.1 Funding By Relative Risk .....	3-10
Figure 3.2 Funding By Phase .....	3-11

## LIST OF ACRONYMS

---

AAFES	Army and Air Force Exchange Service
AFB	Air Force Base
AFBCA	Air Force Base Conversion Agency
AFCEE	Air Force Center for Environmental Excellence
AFP 4	Air Force Plant 4
AFRIMS	Air Force Restoration Information Management System
AGE	Aerospace Ground Equipment
Air Force	U.S. Air Force
AOC	Area of Concern
APA	Affected Property Assessment
APAR	Affected Property Assessment Report
AST	aboveground storage tank
BCP	BRAC Cleanup Plan
BCT	BRAC Cleanup Team
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
CFC	Chlorofluorocarbon
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
COC	Chemical(s) of Concern
CRA	Carswell Redevelopment Authority
CRP	Community Relations Plan
°F	degrees Fahrenheit
DBCRA	Defense Base Closure and Realignment Act
DOD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
ERPIMS	Environmental Restoration Program Information Management System
EPA	U.S. Environmental Protection Agency
ERA	Environmental Restoration Account
FBOP	Federal Bureau of Prisons
FEIS	Final Environmental Impact Statement
FFS	Focused Feasibility Study
FS	Feasibility Study
FY	Fiscal Year
GCA	Ground Controlled Approach
GSAP	Groundwater Sampling and Analysis Program

## LIST OF ACRONYMS

---

HSWA	Hazardous and Solid Waste Amendment
IRP	Installation Restoration Program
JRB	Joint Reserve Base
LTM	Long-term monitoring
LTO	Long-term operation
MAJCOM	Major Command
MAP	Management Action Plan
MGD	Million Gallons Per Day
MOU	Memorandum of Understanding
NA	Not Applicable
NAS	Naval Air Station
Navy	U.S. Navy
NCP	National Contingency Plan
NDI	Non-Destructive Inspection
NEPA	National Environmental Policy Act
NFA	No Further Action
NRHP	National Register of Historic Places
OU	Operable Unit
OWS	Oil/Water Separator
PCB	Polychlorinated Biphenyl
POL	Petroleum/Oil/Lubricant
PRACR	Post-Response Action Care Report
RA	Remedial Action
RAB	Restoration Advisory Board
RACR	Response Action Completion Report
RAER	Response Action Effectiveness Report
RAP	Response Action Plan
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RPM	Remedial Project Manager
RRR	Risk Reduction Rule
RRS	Risk Reduction Standard

---

## LIST OF ACRONYMS

---

SAC	Strategic Air Command
SARA	Superfund Amendment and Reauthorization Act
SHPO	State Historic Preservation Officer
SIN	Self Implementation Notice
SWMU	Solid Waste Management Unit
TACAN	Tactical Air Navigational Aid
TCE	Trichloroethylene
TDPW	Texas Department of Parks and Wildlife
TNRCC	Texas Natural Resource Conservation Commission
TRRP	Texas Risk Reduction Program
TSDF	Treatment, Storage, and Disposal Facility
USACE	U.S. Army Corps of Engineers
USAF	U. S Air Force
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
WAA	waste accumulation area
WSA	weapons storage area
WRA	Westworth Redevelopment Authority

## EXECUTIVE SUMMARY

This Management Action Plan (MAP) offers a synopsis of the Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB) Installation Restoration Program (IRP) as of December 2001. It summarizes the history of the program, the environmental setting, and condition of the installation, the activities to date, and the strategy for future activities. The MAP will be updated as necessary to reflect the ongoing changes in the program.

The objectives of the NAS Fort Worth JRB IRP are to:

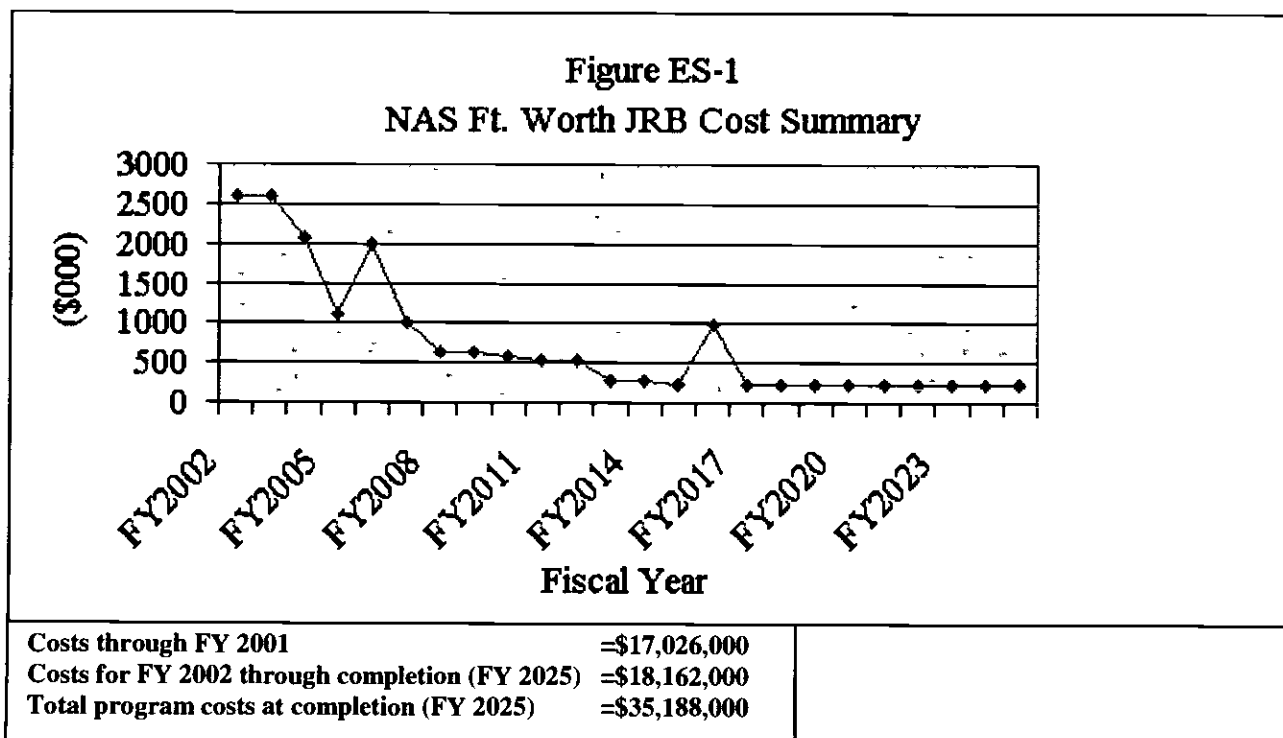
- protect human health and the environment,
- comply with existing statutes, regulations, and permits,
- conduct all restoration activities consistent with statutory requirements, so that restoration, property disposal, and reuse goals can be met,
- initiate selected removal actions to control, eliminate, or reduce imminent risks to manageable levels,
- coordinate partnerships with regulatory agencies, and
- maintain and strengthen community involvement through full and open disclosure.

As a result of past waste and resource management practices, various hazardous substances contaminated portions of the former Carswell Air Force Base (AFB). In response, the U.S. Air Force (Air Force) instituted an environmental restoration program at the base in 1983 to investigate and remediate potential hazards from this contamination. The investigation and remediation phases of this program closely parallel those developed under the Texas Natural Resource Conservation Commission (TNRCC) Risk Reduction Rules (RRR) in concert with the Texas Solid Waste Disposal Act (TSWDA), 30 TAC 335.167, 40 Code of Federal Regulations (CFR) 270.14(d), and Section 3004(u) of the Hazardous and Solid Waste Amendments of 1984 (HSWA).

On October 1, 1994, the Air Force transferred the majority of the property that constituted the former Carswell AFB to the U.S. Navy (Navy) to become the NAS Fort Worth JRB, Carswell Field. The Air Force maintains responsibility for the environmental cleanup of the base and associated property in cooperation with the Navy. Specifically, the Air Force, under its IRP, is responsible for the cleanup of contamination that resulted from operations conducted prior to the October 1, 1994, transfer date. The portions of the former Carswell AFB property, which after the transfer to the Navy was considered NAS Fort Worth JRB property, is being investigated and cleaned up with Environmental Restoration Account (ERA) funds, and is contracted and managed by the Air Force Center for Environmental Excellence (AFCEE) and are sometimes referred to as DERA sites. The contiguous and noncontiguous properties located outside the NAS Fort Worth JRB boundaries, but within the original boundaries of the former Carswell AFB, which are being transferred to the public by the Department of Defense (DOD) are being investigated and remediated with Base Realignment and Closure (BRAC) funds by the Air Force Base Conversion Agency (AFBCA) and are sometimes referred to as BRAC sites.

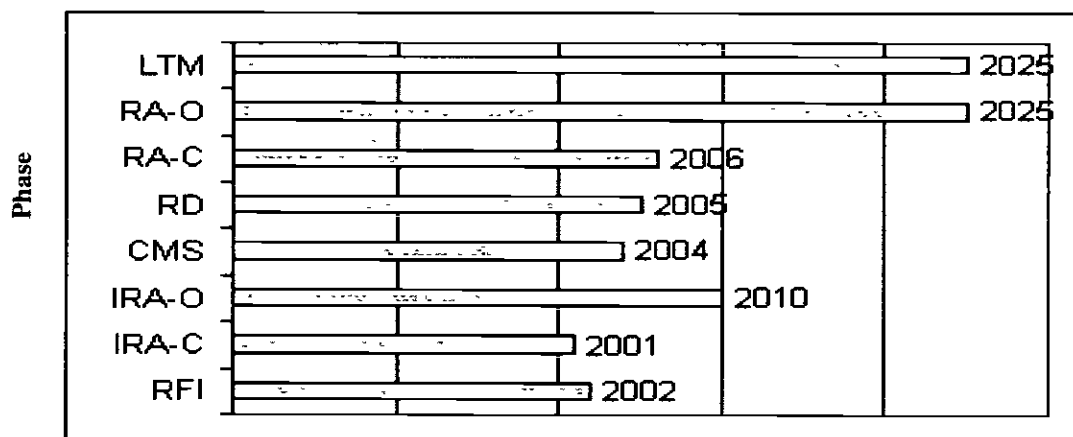
IRP records search and RCRA Facility Assessments (RFA) conducted at the former Carswell AFB and NAS Fort Worth JRB since 1984 have so far identified 68 Solid Waste Management Units (SWMUs) and 20 Areas of Concern (AOCs) as being subject to the TNRCC's Corrective Action Program (CAP). Of these 53 SWMUs and 15 AOCs are considered original DERA sites. Identified sites include landfills, fire training areas, waste accumulation areas, oil water separators (OWSs), a radioactive waste site, underground storage tanks (USTs) and aboveground storage tanks (ASTs), washracks and aircraft wash areas, sewer and drainage systems, polychlorinated biphenyl (PCB) transformers, pesticides, and areas contaminated by spills or dumping.

Prior and future costs associated with executing IRP requirements by AFCEE at NAS Fort Worth JRB since the transfer of portions of the former Carswell AFB to the Navy are summarized in Figure ES-1. Costs from Fiscal Year (FY) 1996 through FY 2001 total approximately \$17,026,000. A total of approximately \$3,248,000 of this amount was obligated in FY 2001. As a result of these expenditures, 27 SWMUs and 8 AOCs of the total 53 SWMUs and 15 AOCs, identified originally at NAS Fort Worth JRB as DERA sites, have been closed. Costs associated with completion of future (FY 2002 to FY 2025) response actions for NAS Fort Worth JRB are summarized in Figure ES-1 and are estimated at \$18,162,000. These planned expenditures are required to execute additional removal and/or remedial response actions in the form of restoration activities management, focused investigations, source excavation and treatment, groundwater extraction and treatment, long-term monitoring (LTM), construction and operation of an innovative technology demonstration system for in-situ treatment of portions of the southern lobe of the basewide trichloroethylene (TCE) plume, and enforcement of institutional controls through the year 2025.



The NAS Fort Worth JRB IRP schedule is summarized in Figure ES-2. Focused investigations at the facility will continue through FY 2002, and remedial design activity at sites requiring action will continue through FY 2005. Removal and remedial actions are expected to continue at several sites through FY 2025. LTM is also expected to continue at selected sites through FY 2025.

**Figure ES-2**  
**NAS Fort Worth JRB Schedule Summary**



#### Fiscal Year

LTM = Long Term Monitoring

CMS = Corrective Measure Study

IRA-O = Interim Remedial Action Operation

IRA-C = Interim Remedial Action Construction

RA-C = Remedial Action Construction

RA-O = Remedial Action Operation

RD = Remedial Design

RFI = RCRA Facility Investigation

Anticipated relative risk reduction at sites is a key measure of merit (MOM) for the Air Force IRP. The current relative risk profile at NAS Fort Worth JRB active sites is as follows: 2 high, 5 medium, 22 low, 4 no risk (including 2 BRAC sites), and 2 not evaluated. The current cleanup strategy, which meets Defense Planning Guidance (DPG) goals, is to clean up to a lower relative risk category, or have remedial systems in place for 50% of the identified high relative risk sites by the end of FY2002, 100% of the identified high relative risk sites by the end of FY2007 (within three years for new sites), 100% of the identified medium relative risk sites by the end of FY2011, and 100% of identified low risk sites by the end of FY2014.

As of January 2002, 41 SWMUs and 12 AOCs have been closed under the CAP, 8 SWMUs and 5 AOCs are awaiting closure, 3 SWMUs are in the Corrective Measure Study (CMS) phase of the corrective action process, 8 SWMUs and 1 AOC are undergoing interim remedial action, and 8 SWMUs and 2 AOCs are being investigated. Only one SWMU and one AOC of the remaining 27 SWMUs and 8 AOCs, which are at various phases of the Corrective Action process, are BRAC funded sites. Only remedial action-operation at sites is expected to continue through FY 2025.

# TAB

*SECTION 1.0*

---



## **FINAL MANAGEMENT ACTION PLAN FOR THE NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE**

### **1.0 INTRODUCTION**

#### **1.1 BACKGROUND**

As a result of past waste and resource management practices, portions of the former Carswell Air Force Base (AFB) were contaminated by various hazardous substances. In response, the U.S. Air Force (Air Force) instituted an environmental restoration program at the base in 1983 (CH2M Hill, 1984, p. I-1) to investigate and remediate potential hazards from this contamination. The current focus of the Installation Restoration Program (IRP) at the former Carswell Air Force Base is to close sites identified in the facility's state issued hazardous waste permit.

On October 1, 1994, the Air Force transferred the majority of the property that constituted Carswell AFB to the U.S. Navy (Navy) to become the Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB), Carswell Field. NAS Fort Worth JRB occupies 2,264 acres in Tarrant County, 8 miles west of downtown Fort Worth, Texas. The general location of NAS Fort Worth JRB, and of the contiguous and noncontiguous properties associated with the former Carswell AFB, is depicted on Figure 1.1. The noncontiguous properties include a 247-acre Weapons Storage Area (Off-Site WSA) and a 44-acre residential parcel known as Kings Branch. A neighbor to the west of NAS Fort Worth JRB is Air Force Plant 4 (AFP 4), a U.S. Government-owned/contractor-operated facility where combat aircraft are designed and manufactured (U.S. Air Force, 1993a, p. 3-1). NAS Fort Worth JRB and AFP 4 operate independently of one another.

The Air Force maintains responsibility for the environmental cleanup of the base and associated property in cooperation with the Navy. Specifically, the Air Force, under its IRP, is responsible for the cleanup of contamination that resulted from operations conducted prior to the October 1, 1994, transfer date. With the exception of a few sites, most of the portions of the former Carswell AFB property, which after the transfer to the Navy was considered NAS Fort Worth JRB property, are being investigated and cleaned up with Environmental Restoration Account (ERA) funds by the Air Force Center for Environmental Excellence (AFCEE). The contiguous and noncontiguous properties located outside the NAS Fort Worth JRB boundaries, but within the original boundaries of the former Carswell AFB, which are being transferred to the public by the Department of Defense (DOD) are being investigated and remediated with Base Realignment and Closure (BRAC) funds by the Air Force Base Conversion Agency (AFBCA). The AFBCA determines the conditions for transfer of property in conjunction with the Westworth Redevelopment Authority (WRA). The AFBCA works closely with the WRA to redevelop land for the economic benefit of the community (Booz-Allen & Hamilton, Inc., 1997, p. 2). Four Solid Waste Management Units (SWMUs) and 2 Areas of Concern (AOCs), namely Fire Training Area 1 (SWMU 18), Landfill 5 (SWMU 23), Waste Burial Area 7 (Waste Pile 7, SWMU 24), Landfill 8 (SWMU 25), Grounds Maintenance Yard (AOC 5), and an Unnamed Stream (AOC 14), which although after the transfer were on property considered NAS Fort Worth JRB property, were also investigated and remediated with BRAC funds by the AFBCA.

A memorandum of agreement (MOU) between AFBCA and AFCEE (The 2002 U.S. Air Force MOU; U. S. Air Force, 2002) transfers management responsibilities of the six AFBCA cleanup sites to AFCEE. Although these sites have been closed, the AFBCA will continue to provide funds to AFCEE, according to a mutually agreed budget procedure, for any costs associated with their post-closure care or any other future responsibilities deemed necessary by state and federal regulators.

The Navy has responsibility for remediating any contamination on NAS Fort Worth JRB resulting from activities conducted after the October 1, 1994 transfer date, and is also managing environmental compliance activities associated with petroleum products, storage tanks, oil/water separators (OWSs), pesticides, medical waste, asbestos, polychlorinated biphenyls (PCBs), radon, lead-based paint, and other hazardous materials. The Air Force and the Navy have signed several MOUs that outline the general terms under which the Air Force and Navy will conduct the environmental management of NAS Fort Worth JRB. The 2002 U.S. Air Force MOU between the AFBCA and AFCEE updates the two entities' management and oversight responsibilities of six contaminated sites at the former Carswell AFB and also details the transfer of management of state and federal regulatory mandated actions (e.g., permit updates) from the AFBCA to AFCEE.<sup>1</sup> The Air Force has also entered into a partnering relationship with the U.S. Environmental Protection Agency (EPA), Region VI, the Texas Natural Resource Conservation Commission (TNRCC), and other state agencies to ensure that it practices quality cleanup efforts and environmental compliance (Booz-Allen & Hamilton, Inc., 1997, pp. 1-2).

This Management Action Plan (MAP) serves as a programmatic roadmap and budgeting guide for completion of ongoing and future restoration activities at NAS Fort Worth JRB. It also provides the current status of continuing environmental restoration activities at the JRB. It is a living document, which is updated periodically, and as such it only reflects information that is current at the time of publication.

## 1.2 REPORT ORGANIZATION

A MAP is a working document intended to summarize the status of an installation's environmental restoration program and discuss the overall strategy for environmental restoration activities. A MAP also defines efforts to resolve technical issues and strategies, action items, and schedules for environmental restoration activities leading to property disposal and transfer (U.S. Air Force, 1995b; U.S. Air Force, 1998; U.S. Air Force 2001e)

The outline for this MAP is designed to fulfill the requirements and purpose for a MAP as it applies to the IRP for NAS Fort Worth JRB. Following the guidance provided in the latest update of the MAP Guidebook, and also because the Navy is responsible for environmental compliance matters, this MAP does not address compliance issues. It should be noted that although the NAS Fort Worth JRB and U.S. Air Force properties associated with the former Carswell AFB, with the exception of AFP 4, will be referred to in this document as NAS Fort Worth JRB, this MAP only applies to the portions of the former Carswell AFB that were

---

<sup>1</sup> Copies of these MOUs are provided in Appendix A

**Figure 1.1**  
Location Map

transferred to the Navy. This includes the six sites, which were originally inside the boundaries of the property transferred to the Navy and under the management and oversight of the AFBCA, but have now been placed under AFCEE management and oversight per the 2002 Draft U.S. Air Force MOU. The environmental restoration activities at contiguous and non-contiguous sites associated with the former Carswell AFB that have been transferred, or are slated for transfer to the public by the Department of Defense, including those that are outside the NAS Fort Worth JRB boundary and still under the management and oversight of the AFBCA, will not be addressed fully in this document. Those sites are investigated and remediated with BRAC funds by the AFBCA, and the current status of the continuing environmental restoration activities, and associated long-range planning and budgeting guide for future restoration activities at the sites are documented in a BRAC Cleanup Plan (BCP). AFP 4 is not addressed in this document except when contamination from that property impacts NAS Fort Worth JRB.

This report consists of seven major sections. Section 1.0 of this report describes the objectives of the environmental restoration program, explains the purpose of this MAP, provides a list of the project team and Restoration Advisory Board (RAB) members, presents a description of the environmental setting of the base and concludes with a brief history of the installation and its current mission.

Section 2.0 summarizes the current status and past history of the NAS Fort Worth JRB IRP, lists the applicable legal requirements and regulatory drivers, and gives an account of the status of community and regulatory involvement in restoration activities that have occurred to date.

Section 3.0 describes the basewide strategy for environmental restoration, including the strategy for dealing with solid waste management units and areas of concern.

Section 4.0 provides master schedules of planned and anticipated activities to be performed throughout the remaining duration of the environmental restoration program.

Section 5.0 describes specific technical and/or administrative issues to be resolved and presents strategies for resolving these issues.

Section 6.0 lists the references for the information contained in this report.

In addition to the main text, the following appendices are included in this document:

- Appendix A contains a copy of the February 1997 MOU concerning environmental compliance which includes copies of the June 8-9, 1993, MOU, the September 23, 1994, MOU, the January 26, 1996, amendment to the original MOU, and the June 19, 1996, MOU as attachments. It also contains the 2002 Draft U. S. Air Force MOU which updates AFBCA and AFCEE's management and oversight responsibilities of contaminated sites and details the transfer of management of state and federal regulatory mandated actions from the AFBCA to AFCEE
- Appendix B contains tables presenting projected restoration costs.

- Appendix C presents a table listing previous environmental restoration program deliverables by SWMU and AOC.
- Appendix D provides copies of relevant correspondence concerning actions at various SWMUs and AOCs.

### **1.3 ENVIRONMENTAL RESTORATION PROGRAM OBJECTIVES**

The objectives of the environmental restoration effort at NAS Fort Worth JRB, are as follows:

- protect human health and the environment,
- comply with existing statutes, regulations, and permits,
- conduct all restoration activities consistent with Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the Community Environmental Response Facilitation Act (CERFA) and any other applicable federal or state statute, e.g., Resource Conservation and Recovery Act (RCRA),
- establish priorities for environmental restoration so that restoration, property disposal, and reuse goals can be met,
- initiate selected removal actions to control, eliminate, or reduce imminent risks to manageable levels,
- characterize health and safety risks associated with releases of hazardous substances, pollutants, contaminants, or hazardous wastes related to property transactions,
- develop, screen, select, and implement remedial actions (RAs) that reduce risks in a manner consistent with statutory requirements to facilitate cleanup, property disposal transactions, and interim leases,
- coordinate NAS Fort Worth JRB environmental response activities with the AFP 4 IRP through effective project management and technical information exchange,
- coordinate partnerships with regulatory agencies, and
- maintain and strengthen community involvement through full and open disclosure.

#### **1.4 MAP PURPOSE, UPDATES, AND DISTRIBUTION**

This MAP is a living document that summarizes the current status of the continuing environmental restoration activities at the NAS Fort Worth JRB. It also provides a long-range planning and budgeting guide for ongoing and future restoration activities in coordination with established compliance programs.

The NAS Fort Worth JRB environmental restoration project team will use this MAP in conjunction with other planning documents to direct and monitor environmental response actions, and to schedule activities needed to resolve technical, administrative, and operational issues. At the major command (MAJCOM) and Air Force (USAF) HQ levels, this MAP will provide essential details for building, justifying, and defending NAS Fort Worth JRB's environmental restoration account program requirements. Regulatory agency representatives, and RAB members and BRAC Cleanup Team (BCT) members will participate in the review of this document as a means of providing input to NAS Fort Worth JRB's IRP plans and budget process.

This MAP will be updated as necessary to ensure it serves its purpose as an effective IRP planning and budgeting tool. Copies of the MAP and subsequent updates will be made available to the BCT, remedial project managers (RPMs), RAB members, and regulatory agencies such as the EPA, Region VI, and the TNRCC (U.S. Air Force, 1995a, p ES-1)

#### **1.5 NAS FORT WORTH JRB ENVIRONMENTAL RESTORATION PROJECT TEAMS AND RESTORATION ADVISORY BOARD**

The BCT and RPM teams implement environmental restoration at the former Carswell AFB and NAS Fort Worth JRB respectively. The BCT team includes representatives from AFCEE, the AFBCA, the TNRCC, and the EPA, Region VI. The BCT meetings act as the primary forum in which regulatory issues and issues affecting the execution of cleanup of BRAC sites to facilitate reuse are addressed. The RPM team includes representatives from AFCEE, the TNRCC, and the EPA, Region VI. The RPM meetings also serve as a primary forum to ensure that applicable regulatory requirements are considered during restoration activities at NAS Fort Worth JRB ERA sites (U.S. Air Force, 1995a, p. 1-3).

The RPM team performs the following tasks (U.S. Air Force, 1996c, p. 4):

- execution of the MAP IRP strategy,
- assumption of final approval authority as NAS Fort Worth JRB RPM on all technical matters for the NAS Fort Worth JRB IRP,
- coordination of IRP regulatory and public meetings,

- maintenance of the administrative record and the information repository for the NAS Fort Worth JRB and AFBCA programs, and
- coordination of IRP investigative and cleanup activities having an impact on Navy or 301st Fighter Wing operations, or AFBCA or AFP 4 sites.

The RPMs and members of the BCT are listed in Table 1.1.

NAS Fort Worth JRB, AFBCA, and AFP 4 hold joint RAB meetings to facilitate communication between the Air Force and the public. The community is informed of BCT and RPM activities and provides input through the RAB. The first joint meeting was held on May 9, 1996, and meetings have continued on a quarterly basis to review the progress of restoration activities, to present NAS Fort Worth JRB, AFBCA, and AFP 4 cleanup activities, and to address matters of public concern. Notices of the meetings are made public, often in the *Fort Worth Star-Telegram* or in smaller, local publications. The minutes of the meetings, which are placed in the administrative record and information repositories for NAS Fort Worth JRB, located at the White Settlement Public Library and the Central Fort Worth Public Library, are also accessible via the Carswell AFB web page located at <http://www.afcee brooks.af.mil/er/carswell/nasfw>. RAB members are listed in Table 1.2 (Booz-Allen & Hamilton, Inc., 1997, p. 24; Universe Technologies, Inc (UNITEC), 2001a).

**Table 1.1**  
**BCT and RPM Members**

Name	Organization	Responsibility	
		RPM	BCT
Mike Dodyk	AFCEE/ERD	X	
Don Ficklen	AFCEE/ERD	X	
Gary Miller	EPA, Region VI	X	X
Charles Pringle	AFBCA/ERB		X
Jim Waldron	AFBCA/DC		X
Melvin Alli	AFCEE	X	
Maj Heather Osterhaus	AFCEE/JA	X	X
Tim Sewell	TNRCC	X	X
Ray Risner	TNRCC	X	
Mark Weegar	TNRCC	X	X

**Table 1.2**  
**Restoration Advisory Board Members**

<b>Name</b>	<b>Organization</b>	<b>Responsibility</b>
J'Nell Pate	Community	RAB Community Co-chairperson
George Walters	ASC/Envr	AFP 4 RPM, RAB Government Co-chairperson
Don Ficklen	AFCEE/ERD	AFCEE Team Chief, RAB Government Co-chairperson
Charles Pringle	AFBCA/ERB	AFCEE Program Manager/AFBCA BEC, RAB Government Co-chairperson
Mike Dodyk	AFCEE/ERD	AFCEE RPM, RAB Government Co-chairperson
Ed DeLoach	Community	Community Representative
Gregory Hendrickson	River Oaks	Community Representative
W F Olshefski	Lake Worth Civic Club	Community Representative
D W Owen	River Oaks	Community Representative
I Michael Gross	Community	Community Representative
B. K. Pressley	Community	Community Representative
Ed Von Kohn	Westworth Village	Community Representative
Vincent S. Wilcox	Community	Community Representative

## **1.6 BRIEF DESCRIPTION OF ENVIRONMENTAL SETTING**

### **1.6.1 Geography, Geology, Hydrogeology, Climate**

NAS Fort Worth JRB, formerly Carswell AFB, occupies 2,264 acres in Tarrant County, eight miles west of downtown Fort Worth, Texas. The West Fork of the Trinity River flows along the eastern boundary of the former AFB. Lake Worth, a water supply and recreation reservoir, borders NAS Fort Worth JRB to the north. AFP 4 is located immediately west of the base and shares the runway with NAS Fort Worth JRB. Surrounding communities include the town of Westworth Village to the east, the city of Fort Worth to the northeast and southeast, and the city of White Settlement to the west and southwest (Figure 1.2). Fifty-eight percent of the base falls within the jurisdiction of Fort Worth; 34 percent of the base comes under the jurisdiction of Westworth Village; and 8 percent is within the boundaries of White Settlement (Booz-Allen & Hamilton, Inc., 1997, pp. 5, 8).

Primary surface water features in the vicinity include Lake Worth, Farmers Branch Creek, and the West Fork of the Trinity River. Lake Worth was formed by damming the West Fork of the Trinity River and is part of a system of lakes that provide drinking water to the city of Fort Worth (Booz-Allen & Hamilton, Inc., 1997, pp. 5, 8, 10).



**Figure 1.2**

Topographic Map of NAS Fort Worth JRB and Vicinity

The major geologic units of interest for the NAS Fort Worth JRB region, from youngest to oldest, are as follows: (1) the Quaternary Alluvium (including fill material and terrace deposits), (2) the Cretaceous Goodland Limestone, (3) the Cretaceous Walnut Formation, (4) the Cretaceous Paluxy Formation, (5) the Cretaceous Glen Rose Formation, and (6) the Cretaceous Twin Mountains Formation. A generalized cross section of the geology beneath NAS Fort Worth JRB is presented in Figure 1.2 (Radian, 1989). The regional dip of these stratigraphic units beneath NAS Fort Worth JRB is between 35 to 40 feet per mile in an easterly to southeasterly direction. NAS Fort Worth JRB is located on the relatively stable Texas Craton, west of the faults that lie along the Ouachita Structural Belt. No major faults or fracture zones have been mapped near the base.

The following five hydrogeologic units, listed from the shallowest to the deepest, located in the NAS Fort Worth JRB area (Figure 1.3) include: (1) an upper perched-water zone occurring in the alluvial terrace deposits associated with the Trinity River (Terrace Alluvium), (2) an aquitard of predominantly dry limestone with interbedded fine-grained clay and shale layers of the Goodland and Walnut Formations, (3) an aquifer in the Paluxy Formation, (4) an aquitard of relatively impermeable limestone in the Glen Rose Formation, and (5) a major aquifer in the sandstone of the Twin Mountains Formation. In some areas of AFP 4, the Goodland and Walnut formations are thin and, in some cases, non-existent, allowing shallow groundwater to come into contact with the Paluxy Aquifer. Also, the Goodland and Walnut formations are cut by paleo channels that allow the shallow groundwater to reach the Paluxy Aquifer (Booz-Allen & Hamilton, Inc., 1997, p. 9).

The Paluxy Aquifer is an important source of potable groundwater for the Fort Worth area. Surrounding communities, especially White Settlement, develop their municipal water supplies from the Paluxy Aquifer. Groundwater from the Paluxy Aquifer is also used by some of the surrounding farms and ranches for agricultural purposes. Water levels have declined significantly over the years due to extensive use of the aquifer, particularly in the Fort Worth area. Water levels in the NAS Fort Worth JRB vicinity have not decreased as much due to the area's proximity to the Lake Worth recharge area and the fact that the base does not develop water from the Paluxy Aquifer. Drinking water is supplied by the city of Fort Worth, which uses Lake Worth as its water source (HydroGeoLogic, Inc., 1998, p. 2-15).

The fine-grained limestone, shale, marl, and sandstone beds of the Glen Rose Formation lie beneath the Paluxy Aquifer, with a thickness of 250 to 450 feet. The sands in the Glen Rose Formation yield small quantities of groundwater in the area; the impermeable limestone acts as an aquitard restricting water movement between the Paluxy Aquifer and the deeper Twin Mountains Aquifer. The Twin Mountains Aquifer is the oldest and deepest water supply source used in the NAS Fort Worth JRB area, occurring approximately 600 feet below ground surface with a thickness between 250 to 430 feet (HydroGeoLogic, Inc., 1998, p. 2-3).

**Figure 1.3**

Stratigraphic Column Correlating Hydrogeologic Units and Geologic Units

The average annual temperature in the Fort Worth area is 66 degrees Fahrenheit (°F), and monthly means temperatures vary from 45 °F in January to 86 °F in July. The average daily minimum temperature in January is 35 °F, and the lowest recorded temperature is 2 °F. The average daily maximum temperature in July and August is 95 °F, and the highest temperature ever recorded at the base is 111 °F. Freezing temperatures occur at NAS Fort Worth JRB an average of 33 days per year (Booz-Allen & Hamilton, Inc., 1997, p. 10).

Mean annual precipitation recorded at the base is approximately 32 inches. The wettest months are April, May, and September. It is generally dry from November to March, and then again in August. Measurable snowfall occurs 2 days per year between November and March. Most thunderstorm activity occurs at the base between April and June, averaging 45 days per year (CH2M Hill, 1984, p. III-1).

### **1.6.2 Natural and Cultural Resources**

Buck Oaks Farm, a historical structure located within the boundaries of NAS Fort Worth JRB, was placed on the National Register of Historic Places (NRHP) in 1987. There are no significant archaeological or prehistoric sites within the boundaries of NAS Fort Worth JRB (Booz-Allen & Hamilton, Inc., 1997, p. 10).

Few animal habitats are concentrated in the area due to its urban nature. Common birds in the area include herons, kestrels, kingfishers, seagulls, mourning doves, meadowlarks, grackles, and starlings. Bass, catfish, and sunfish are found in the waters of the Trinity River. No endangered species nest on NAS Fort Worth JRB property, although several bird species are considered endangered in the Fort Worth area (Booz-Allen & Hamilton, Inc., 1997, p. 10).

## **1.7 BRIEF HISTORY OF INSTALLATION AND CURRENT MISSION**

NAS Fort Worth JRB, formerly Carswell AFB was originally Tarrant Field Airdrome, a military installation established in 1942, which was used primarily for flight training and heavy bomber operations. In 1946, the Strategic Air Command (SAC) assumed control of the installation, and the base became headquarters for the 8th Air Force. The base was renamed Carswell AFB in 1948 in honor of a Fort Worth native, Major Horace S. Carswell. The headquarters of the 19th Air Division, was located at Carswell AFB from 1951 to 1988 (CH2M Hill, 1984; U.S. Air Force, 1993a).

In the late 1950s, base renovations included the extension of a runway and the addition of a weapons storage area, office space, warehouses, and a fuel hydrant system. Construction through the 1970s created engine test cells and base amenities, including dormitories and base exchange services (U.S. Air Force, 1993a, p. 3-3). In the 1980s, a hospital, maintenance facilities, offices, and a munitions assembly shop were added (U.S. Air Force, 1993a, p. 3-5).

Other properties that supported the base consisted of the Off-Site WSA and Kings Branch, the residential area. Kings Branch is located off base just outside the base perimeter to the southeast of the main gate. The Off-Site WSA is located off White Settlement Road, 5 miles to the west of the base (Booz-Allen & Hamilton, Inc., 1997, p. 5).

The former Carswell AFB was selected for closure under the Defense Base Closure and Realignment Act (DBCRA) of 1990 during Round II Base Closure Commission deliberations. First-stage closure activities were initiated in 1992; all aircraft were relocated to Barksdale AFB by January 1993. The base ceased operations on September 30, 1993, and was transferred to the AFBCA for property distribution and reuse. The base was realigned and renamed NAS Fort Worth JRB, Carswell Field on October 1, 1994, when the Navy assumed control of a major portion of the property (Booz-Allen & Hamilton, Inc., 1997, p. 5).

Since the former Carswell AFB was realigned in 1993, the major activities at the base have been the repair and maintenance of aircraft and aircraft engines by the Navy and different contractors in conjunction with Lockheed-Martin's Air Force Plant, (AFP 4), which is located west of the base.

In 1990, when the DBCRA authorized the closure of Carswell AFB, it allowed the retention of an area for continued Air Force operations. The retained portion of the base property was to be used to support continued operations of the 301st Tactical Fighter Wing and AFP 4 run-up stations. The recommendations of the DBCRA made in 1993 also allowed for the relocation of several DOD organizations to NAS Fort Worth JRB. The partial record of decision, published in August 1995, supported the disposal decisions based on the 1990 and 1993 DBCRA decisions. An additional disposal-related decision was made in April 1993, in which the Secretary of the Air Force declared Kings Branch excess and surplus to accelerate disposal for civilian use (U.S. Air Force, 1995a, p. 2-1).

A reuse plan developed by the Carswell Redevelopment Authority (CRA), which was later modified by its successor, the WRA and submitted to the AFBCA in July 1997, divided the former Carswell AFB into 12 parcels to assist in the disposal and reuse of the base. A listing of the parcel names and reuse designations can be found in Table 1.3.

Current military on-base tenants at the NAS Fort Worth JRB include the 301st Tactical Fighter Wing, the Navy, the Army and Air Force Exchange Service and Base Exchange, and the Air Force Commissary Service. In addition to the 301st Fighter Wing, current commands/units at NAS Fort Worth JRB include the 10th Air Force, Marine Aircraft Group 41 (MAG 41), Fighter Attack Squadron 201 (VFA 201, Navy), Fleet Logistics Support Squadron 59 (VR 59 Navy), Marine Aerial Refueler Transport Squadron 234 (VMGR 234), Marine Fighter Attack Squadron 112 (VMFA 112), Marine Air Control Squadron 24 (MACS 24), Naval Reserve Readiness Command, Naval Reserve Security Group Command 16, 14th Marine Regiment, Navy Legal Service Office, Ninth Naval Construction Regiment, Naval Reserve Recruiting Area South, VFA-201(Fighter Attack Squadron 201) (Navy), Branch Medical Clinic, Texas Air National Guard, Training Meteorology and Oceanography Development, Naval Mobile Construction

**Table 1.3**  
**Parcel Designations**

<b>Parcel</b>	<b>Name</b>	<b>Reuse Organization</b>
A	Federal Bureau of Prisons	Federal Transfer to FBOP
B	None	Public Benefit Conveyance to U.S. Department of Health and Human Services
C	None	Public Benefit Conveyance to U.S. Department of Education
D	NAS Fort Worth JRB	U.S. Navy
E	Kings Branch Housing Area	Economic Development Conveyance
F	Wherry Housing Area	Economic Development Conveyance
G	Carswell Golf Course Area*	Economic Development Conveyance
H	Horse Pasture Area	Economic Development Conveyance
I	Lockheed Martin Area	Air Force Retained for AFP 4
J	Instrument Landing Site	Air Force Retained for Air Force Reserve
K	Off-Site WSA	Public Sale
-	Lease Area Bordering Lake Worth	Lease

**Notes:**

\* Also includes the Environmental Area (G1), which is fenced off and is currently being remediated. This area is currently unavailable for conveyance.

AFP 4 Air Force Plant 4

DOD Department of Defense

FBOP Federal Bureau of Prisons

WSA Weapons Storage Area

Battalion 22, Naval Reserve Center - Fort Worth, Civil Air Patrol-USAF SWLR, Fleet Logistics Support Wing, Mobile Inshore Undersea Warfare Unit 109, Marine Corps Prior Service Recruiters Regiment 8, Branch Dental Clinic, Fighter Squadron (MWSS 471), Naval Reserve Intelligence Command, Reserve Intelligence Area Six, and Marine Aviation Logistics Squadron 41(MALS-41). Some of the non-military on-base tenants include NR Fleet Hospital Dallas Headquarters, Omni American Federal Credit Union, Northwood University, Columbia College, Embry-Riddle Aeronautical University, and Midwestern State University.

Per the 1993 DBCRA recommendations, the Air Force has retained a portion of the former Carswell AFB, including Parcel I, the Lockheed-Martin Area, which continues operations as AFP 4, and Parcel J, the Instrument Landing Site, located west of the base, which is managed by the Air Force Reserve. Parcel A has been transferred to the FBOP. Parcels B and C are both public benefit conveyances for the U.S. Department of Health and Human Services and the U.S. Department of Education, respectively. The area on the northern boundary of the former Carswell AFB bordering Lake Worth will be leased (Westworth Redevelopment Authority, 1997, pp. 4-5, 22)

Four parcels — E, the Kings Branch Housing Area; F, the Wherry Housing Area, G, the Carswell Golf Course, and H, the Horse Pasture Area — have been proposed for conveyance to private developers. The WRA is facilitating the sale of these four parcels and providing the

administration necessary for the most economically beneficial sale. It has been proposed to lease homes in Parcel F and to eventually remove all housing units for commercial development. It has been proposed that Parcel E be developed into a residential area. Under the proposal, Parcel G will continue to be operated by the WRA as a public golf course and managed by a professional golf course management company, with a schedule of continued maintenance. Parcel H has been proposed for lease to an interested party for maintaining horses with the possibility of being an expansion area for the golf course. It has been proposed that Parcel K be sold in its present condition, if possible (Westworth Redevelopment Authority, 1997; AFBCA Disposal and Reuse Map). The boundaries of the parcels can be found on Figure 1.4.

The only existing legal agreements/interim leases are (1) a lease with the WRA for use of the golf course (Parcel G) dated February 1, 1994, and (2) a permit with the FBOP for the hospital area (Parcel A) dated April 1994. To date, no property at NAS Fort Worth JRB has been determined suitable for transfer by deed (Hydrogeologic, 2000).

Since the beginning of industrial operations in 1942, wastes have been generated and disposed of at NAS Fort Worth JRB. The locations of past hazardous substance activities are now managed as SWMUs and AOCs (Figure 2.1). Major industrial operations on the base have included jet engine, aerospace ground equipment (AGE), fuel system, weapons system, pneumatic/hydraulic (pneudraulic) system, general and special purpose vehicle maintenance, aircraft corrosion control, and nondestructive inspection activities. All of these operations have generated wastes, primarily oils, recoverable fuels, spent solvents, and cleaners (U.S. Air Force 1995a, p. 1-8; U.S. Air Force, 2001a). Sources of the hazardous substances associated with the various SWMUs and AOCs identified at the former Carswell AFB are listed in Table 1.4.

**Figure 1.4**  
Parcel Locations



It should be noted that the list includes sites which are managed under the BRAC cleanup program. These BRAC sites are listed to give an overall picture of the past hazardous substance activities at NAS Fort Worth JRB and its contiguous and non-contiguous properties. As explained in Section 1.2, those sites are investigated and remediated with BRAC funds by the AFBCA, and the current status of the continuing environmental restoration activities, and associated long-range planning and budgeting guide for future restoration activities at the sites are documented in a BRAC Cleanup Plan (BCP).

For historical perspective, the total quantity of waste oils, recoverable fuels, spent solvents, and cleaners that was generated during the 1970s and early 1980s is estimated to be approximately 55,000 gallons per year. Past and present industrial waste disposal practices are summarized below and in Table 1.5 (U.S. Air Force 1995a, pp. 1-8; U.S. Air Force, 2001a).

- 1942-1971: The majority of waste oils, recovered fuels, spent solvents, and cleaners were burned at the fire department training areas during practice exercises. Some waste oils and spent solvents were disposed of through contractor removal, while some waste paints (contaminated with thinners and solvents), waste oils, and the solvent PD-680 are suspected of having been disposed of in base landfills. Some waste oils, recovered fuels, spent solvents, and cleaners were also discharged to sanitary and storm sewers. These discharges occurred primarily at the washracks. In 1955, an OWS was installed to recover waste materials discharged from the washracks. Materials from the OWS were pumped out and disposed of by private contractors.
- 1971-1975: During this period, most waste oils, spent solvents, and cleaners were disposed of by contractor removal. A private contractor would pump the materials from OWSs and from 55-gallon drums and bowlers. Recovered JP-4 was stored at the fire department training area and burned in practice exercises. Recovered JP-4 was also reused. Some waste oils, solvents, and cleaners were discharged into sanitary drains. Also, some waste paints (contaminated with thinners and solvents), waste oils, and PD-680 are suspected of having been disposed of in the base landfills.
- 1975-1982. The majority of waste oils, spent solvents, and cleaners were disposed of by service contract, either directly or through the DRMO. Recovered JP-4 was stored at the fire department training area and burned during practice exercises; recovered JP-4 was also reused. PD-680 used at the washracks was discharged to an OWS that discharged to the sanitary sewer system.
- 1982-1994: Waste oils, solvents, and cleaners were collected in 55-gallon drums and stored for fewer than 90 days at 12 hazardous waste accumulation points located throughout the flight line area. These materials were disposed of by contractor removal through the DRMO. Recovered JP-4 fuel was stored at the fire department training area for burning in fire training exercises. Off-base contractors removed waste oils and PD-680 (Type II) from OWSs.

- 1994-2001: Waste oils, solvents, and cleaners are collected in 55-gallon drums and stored for fewer than 90 days at hazardous waste accumulation points located throughout the facility. These materials are disposed of by contractor removal. Waste oils and sludge recovered from OWSs and recovered fuel is removed and disposed of by off-base contractors.

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 1*	Pathological Waste Incinerator	This unit was composed of a natural gas-fired combustion chamber and exhaust stack. The combustion chamber was approximately 4 feet wide by 10 feet long by 6.5 feet high. The exhaust stack was approximately 20 feet high. The incinerator rested on a concrete pad and was surrounded by a metal fence, which was kept locked.	1985 startup date, end of service date not available	Pathological solid wastes such as syringes, clothing, linens, and surgical masks
SWMU 2*	Pathological Waste Storage Shed	This unit was a four-sided, roofed, wooden structure located next to solid waste management unit (SWMU) 1. The floor was wood and was situated on a concrete pad. The shed was approximately 10-foot long by 8 feet wide by 7 feet high.	1985 startup date, end of service date not available.	Pathological solid wastes such as syringes, clothing, linens, and surgical masks. These wastes were stored in plastic bags.
SWMU 3*	Metal Cans	This unit consisted of three metal cans used to store the ash removed from SWMU 1 prior to disposal in SWMU 4.	1985 startup date, end of service date not available	Ash and other debris such as small vials and bottles that were generated by SWMU 1.
SWMU 4*	Facility Dumpsters	This unit consisted of rectangular steel dumpsters approximately 6 feet long by 5 feet wide by about 6.5 feet high. These units may have been situated on concrete, asphalt, or bare ground. They were located throughout the facility in close proximity to various buildings. Waste stored in these dumpsters was disposed of in an offsite landfill.	No startup date is available. The units are no longer active.	Miscellaneous non-hazardous wastes such as paper, cardboard, food scrap, and plastic containers. Waste from SWMU 1 was also managed by these units.
SWMU 5	Bldg. 1628 WAA	This unit is an outdoor container storage area with a metal roof and walls that serves as the waste accumulation area (WAA) for Building 1628. SWMU 5 is located at the intersection of Carswell and Eisenhower Avenues. This unit handled waste generated by the corrosion control shop and the Aerospace Ground Equipment (AGE) maintenance shop. Waste was collected in drums and then transferred to the storage area. The storage area is a roofed metal shed with a concrete base approximately 15 feet by 10 feet in dimension. New walls were added to the former storage shed in 1989 and it is currently used by the 301st Air Reserve used for storage.	No startup date is available. The unit is currently active.	Oils Antifreeze Paints Thinner Stripper Spent lead acid batteries Aircraft soap

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 6	Bldg 1628 Wash Rack and Drain	This unit was formerly an outdoor concrete pad that served as a wash rack and drain for aircraft engines parts. The pad was curbed and sloped so that runoff from the wash operations flowed into a drain. SWMU 6 was located south of Building 1628, northwest of SWMU 5, and west of the intersection of Carswell and Eisenhower Avenues. Fluid from the wash operations was directed to the drain and plumbed to SWMU 7. The oily fraction of the fluid continued to SWMU 8 and the wastewater fraction to the sanitary sewer system. This unit was removed shortly after 1990.	1979 – 1990	Only fractions of aircraft soap (i.e. petroleum naphtha solvent and PD-680) Aviation Jet Fuel (JP-4) Waste paints and thinners Aircraft engine hydraulic fluids Engine oil
SWMU 7	Bldg 1628 OWS	This unit is an outdoor, L-shaped, concrete structure, exposed approximately 2 feet above ground surface and the remaining 4.5 feet below ground surface. It measures approximately 7.5 feet wide by 32 feet long on the main section with an adjacent stormwater overflow section that measures 7 feet 8 inches by 6 feet 3 inches and has a capacity of approximately 20,000 gallons. The oil water separator was originally installed to receive wastewater from SWMU 6 and to serve as a release control for the refueling facility, which contained three underground storage tanks (UST). The oily fraction of the wastewater continued to SWMU 8. Currently, this area serves as a release control for any potential fuel leaks from the aerospace ground equipment fueling facility.	1979 – present	Fuel Lubricants Detergents Cleaning solvents, possibly cleaning agents Hydraulic fluid, engine oil from SWMU 6 Surface water runoff Waste antifreeze Methyl ethyl ketone (MEK) Epoxy paint stripper and thinner Recyclable oils from SWMU 5
SWMU 8	Bldg 1628 Sludge Collection Tank	This unit is a sludge collection tank described as a carbon steel UST encased in concrete, with a capacity to hold approximately 1,000 gallons. This unit is used to manage the oily fraction of waste separated from SWMU 7.	1979 – present	Waste oils, Traces of engine hydraulic fluids PD-680

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 9	Bldg 1628 Work Station WAA	This unit consisted of a 5-gallon metal can. When the can was full, it was dumped into a SWMU 4 dumpster for disposal.	1979 startup date, end of service date not available.	Rags containing MEK and epoxy stripper Rags containing aircraft engine hydraulic fluid, and/or aircraft engine oil
SWMU 10	Bldg 1617 Work Station WAA	This unit consisted of two 5-gallon metal cans associated with a steel workbench where silk screens were sprayed with lacquer thinner to remove the ink. These silk screens were used for marking circuit boards. The waste in this can was then poured into a 55-gallon drum at SWMU 11. The second can was used to store dirty rags. This can was dumped into a SWMU 4 dumpster.	No startup date was available, end of service date not available.	Lacquer thinner/ink residue Rags containing lacquer thinner and ink
SWMU 11	Bldg 1617 WAA	This unit is an outdoor container storage area for waste generated by operations in Building 1617 and 1619 (paint shop and electric shop). SWMU 11 is located adjacent to Building 1617 at the intersection of D and 1st Streets. Waste was stored in plastic drums and placed on wooden pallets on an uncovered 8-foot by 5-foot concrete pad surrounded by a wooden fence. WAA 1618 was built on top of the former site and is currently managed by the 301st Air Reserve.	1982 – present	Sodium persulfate Spent etchant Spent paints Spent solvents
SWMU 12	Bldg. 1619 WAA	This unit was located east of Building 1602 at the edge of the parking lot, along D Street. SWMU 12 was an uncovered concrete pad that no longer exists. Waste generated from Building 1602 (propulsion shop) was collected in drums and stored on wooden pallets on the pad. The concrete pad no longer exists and no wastes are currently stored at this area.	1982 – 1990	JP-4 7808 oil PD-680 (Type II)

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 13	Bldg 1710 WAA	This unit consisted of four WAAs located in the versamat processing room, the black and white film processing room, the black and white print processing room, and color print processing room of Building 1710. Each room utilized either a piece of processing equipment or processing tank which was plumbed, via sink or drain, directly to associated WAA which in turn was plumbed directly to a sanitary sewer drain. The WAAs are described as small covered plastic containers used to catch waste from the processing equipment.	No startup date is available, the unit was dismantled shortly after 1990	Photographic processing chemicals Polyurethane paint particles Silver
SWMU 14	Bldg. 1060 Bead Blaster Collection Tray	This unit collected beads used for stripping paint off small airplane parts. These beads become contaminated with polyurethane paint after use. The collection tray was approx. 18 inches long by 6 inches wide by 5 inches deep. The beads were scooped out with a small shovel and placed in a 55-gallon drum at SWMU 16.	1987 startup date, end of service date not available	Polyurethane paint-laden plastic beads
SWMU 15	Bldg 1060 Paint Booth Vault	This unit was a concrete vault containing a series of paint filters in a spray booth. The vault was located below the floor of the paint booth room. The vault was approximately 10 feet deep. When the filters were removed, they were stored in 85-gallon overpack drums. These drums were temporarily stored at SWMU 16.	1986 startup date, end of service date not available.	Polyurethane paint particles.
SWMU 16	Bldg 1060 WAA	This unit was a 20-foot by 40-foot fenced area of asphalt parking lot used to store waste from Building 1060, the corrosion control shop as well as some waste from Building 1050s pneumatics shop. Waste from the stripping tank and soap tank was collected in drums and stored at this site, waste from the pneumatics shop was drummed and taken to SWMU 16. SWMU 16 is located southeast of Building 1060, between Perimeter Road and Haile Drive. WAA 1059 was built over the former SWMU in 1990 and is currently used by the Navy.	1982 - 1990	Wastes including polyurethane paint and contaminated rags Spent plastic bead blasting media Hydraulic fluid PD-680 (Type II) MEK Surface stripper Paint remover Hydrofluoric acid Alodine (acid)

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 17	Landfill 7	This former landfill is located approximately 1,500 feet north of SWMU 19, east of the north-south Taxiway 197, south of Taxiway 190, and adjacent to SWMU 23. The former landfill is approximately 5.2 acres in size. The area is mounded and runoff from the site flows to a shallow drainage feature east of the unit.	1978 – 1983	Construction rubble and debris
SWMU 18*	Fire Training Area 1	This unit was located approximately 500-feet south of SWMU 17. This unit is suspected of being the primary fire-training unit prior to 1963. This unit consisted of a gravel-lined pit with a low curb around its perimeter and was used to hold materials set on fire for training exercises. This site was covered in 1963.	1942 – 1963	Waste oils Contaminated fuels Waste polyurethane paint Small quantities of solvents
SWMU 19	Fire Training Area 2	This area was used as a fire training area and consisted of a circular gravel-lined pit with inner and outer earthen berms (2 feet high) made of clayey soil around its perimeter. The outer berm measured 260-feet in diameter encompassing approximately 1.2 acres. A drainage pipe was located on the northeast side of the outer bermed area. The inner berm area was 120 feet in diameter and approximately encompassed 0.25 acres. Periodically 25 - 30 dumpsters were filled with oil, solvents, and fuel from SWMU 20 and 21 and ignited to simulate aircraft fire. The pit was eventually filled with sediment, and later capped with clay.	1963 – 1993	JP-4 Waste oils Kerosene Possibly solvents
SWMU 20	Waste Fuel Storage Tank	This area was an 8,500-gallon concrete above ground storage tank (AST) used for flammable liquid wastes for use during fire training exercises (SWMU 19) and transferred by an above ground piping system.	Approximately 1963 – 1993	JP-4 Waste oils Kerosene Possibly solvents
SWMU 21	Waste Oil Tank	This was a 12,000-gallon UST used to store oil and solvents from flightline industrial shops or eventual use at the inner bermed area of SWMU 19 during fire training exercises. This unit was removed before 1993.	1966 startup date, the unit was reportedly removed prior to 1993	Waste oils Solvents

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 22*	Landfill 4	This former landfill is approximately 9 acres in size and is located east of Taxiway 197, south of White Settlement Road, and adjacent to SWMU 17. After the period of official operation, the site was converted into a radar facility that operated from approximately 1981-1995. The unit currently has a municipal landfill cover and all buildings have been demolished.	1956 – 1975	Solid domestic waste Construction debris Partially filled paint cans Drums of waste paints Cadmium batteries Thinners Oils PD-680 Medical waste Potentially small amounts of undocumented hazardous materials
SWMU 23*#	Landfill 5	This unit is approx 3.1 acres in size and is located 250 feet north of the northwest corner of SWMU 22 adjacent to the western border of the base perimeter road. An intermittent un-named tributary of Farmers Branch Creek serves as the western and northern border of SWMU 23. A clay berm was constructed adjacent to the un-named tributary during this unit's period of operation. As part of TNRCC landfill closure requirements, a municipal landfill cover was installed in 2000.	1962 – 1975	All types of waste from the flightline area. Wastes managed were similar to those at SWMU 22
SWMU 24*#	Waste Burial Area	This former disposal/storage area is a 0.64-acre triangular strip of land located between SWMUs 22 and 23, adjacent to the base perimeter road and security fencing. Metals (primarily lead), and drums containing trichloroethylene (TCE) have been excavated from the site in the past. TCE contaminated groundwater is currently being monitored and treated at the site.	1960s	Drums of cleaning solvents Tetraethyl lead sludge Small quantities of undetermined waste



**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 25*#	Landfill 8	This former landfill unit is a 10 acre parcel of land located east of Taxiway 197, south of Taxiway Charlie, directly north of SWMU 17, adjacent to AOC 19, and west of the base security fence. The unit overlies the underground aqueduct for Farmers Branch Creek.	1960s	Asphalt, concrete rubble, construction debris, metal, trees, and wood. No hazardous materials were reportedly buried at this site; however, some of the fill materials may have contained hazardous constituents
SWMU 26	Landfill 3	This former landfill was located under the present north-south Primary Instrument Runway, and bisected the underground aqueduct carrying Farmers Branch Creek. SWMU 26 is approximately 2.5 acres in size. Landfill materials were removed during runway extension activities in 1954. The location of removed materials is unknown. A geophysical survey performed east and west of the runway located a large anomaly in the northwest quadrant as defined by the intersection of the aqueduct and the primary runway. Several smaller anomalies were also located in the southwest and the northeast quadrants.	1950 – 1952	Construction rubble and debris. Possibly small quantities of hazardous wastes.
SWMU 27	Landfill 10	This former landfill was located in the southwestern portion of the base, south of the culvert carrying Farmers Branch Creek, between the perimeter road and the North-South Primary Instrument Runway. The unit consisted of one large trench approx. 20 feet wide by 500 feet long by 14 feet deep. It has been determined that the unit did not manage hazardous waste.	No startup date is available. The unit is no longer active.	Concrete rubble and tree limbs. No hazardous waste was encountered.
SWMU 28	Landfill 1	This former landfill is located east of the present Defense Reutilization and Maintenance Organization storage yard adjacent to the West Fork Trinity River levee. SWMU 28 is approximately 1.9 acres in size. The site was partially excavated during floodway construction activities by the USACE in 1967. The location of excavated landfill debris has not been determined.	1940s	No information available.

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 29	Landfill 2	This former landfill is located near Haile Drive and Hobby Shop Road, lying partially under Building 1055. SWMU 29 is approximately 5.7 acres in size. The site was reportedly a borrow pit for runway construction during the 1940s and then used as a landfill. Refuse was reportedly buried in shallow trenches. The site is approximately 200 feet from a tributary of Farmers Branch Creek.	1952 – 1956	Rubble, construction materials, and debris Moderate quantities of hazardous waste
SWMU 30	Landfill 9	This former landfill is located in the northeast portion of the base adjacent to the West Fork Trinity River. SWMU 30 is approximately 3.1 acres.	1978 – 1983	Construction rubble and trees Wastes with hazardous constituents may have been disposed of here and included asphalt, metals, and pesticides.
SWMU 31	Bldg. 1050 WAA	This unit was an outdoor, uncovered, 6-inch thick concrete pad measuring 15 feet by 18 feet. This unit, which had no surrounding fence or secondary barricade, supported approximately ten 55-gallon drums and several smaller containers. Waste collected from the pneumatics shop and the fire control shop were stored here. SWMU 31 is located southeast of Building 1050 on Perimeter Road. In 1990, a roof was erected over the concrete pad to serve as a cover for a picnic table; waste is no longer stored at this site.	1955 – 1990	PD-680 (Type II), hydraulic fluid and oil MEK, TCE, and perchloroethylene SE-377C (solvent) contaminated with cadmium Citri-Kleen (solvent) Silicone damping fluid contaminated with freon 113 (Dichlorodifluoromethane)

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 32	Bldg. 1410 WAA	This unit was an outdoor uncovered container storage area with a concrete base used to store waste generated by the battery, engine, bearing, and wheel and tire shops within Building 1410. In addition to 55-gallon drums, this unit also contained a 500-gallon tank. Sand bags were piled two feet high along the perimeter of the unit. SWMU 32 is located southeast of Building 1410, between Perimeter Road and 3rd Street. A new storage shed, WAA 1415, was built on top of the northern end of the former SWMU in 1990 and is currently used by the Mannes.	Early 1940's – present	PD-680 Hydraulic fluid Calibrating fluid Carbon and fingerprint remover JP-4 Strippers TCE and SE-377E
SWMU 33	Bldg. 1420 WAA	This unit was an outdoor uncovered unit, surrounded on three sides by a wooden fence. The base of the unit was part concrete and part asphalt. Waste from Building 1420 and possibly from Buildings 1403, 1405, 1418, and 1434, were drummed and stored at the unit. SWMU 33 is located southeast of Building 1420 near the intersection of 1st Street and Perimeter Road. A new WAA storage shed was built at the site in 1990 to store wastes at the site.	1982 – present	PD-680 (Type II) Brake and hydraulic fluid Possibly paints Solvents Strippers Thinners
SWMU 34	Bldg. 1194 WAA	This unit was a paved concrete area which sloped away from Building 1194 towards a parking lot and was surrounded by discontinuous concrete curbing. This unit served as the Building 1194 WAA accepting drummed waste from the vehicle refueling shop which was stored on wooden pallets. Waste oils generated from the shop were placed into a 300-gallon browser located at the site. SWMU 34 is located south of Building 1194, at the intersection of A Street and Knights Lake Road. No waste is currently stored at this area.	No startup date is available, wastes were removed from the site shortly after 1990	Waste oils Transmission fluid Spent PD-680 (Type II) Antifreeze

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 35	Bldg 1194 Vehicle Refueling Shop OWS System	This unit is located immediately adjacent to the south side of Building 1194, the Fuel Truck Repair Building at the intersection of Haile and Jennings Drives. The area where the oil/water separator (OWS) is located is paved with 8-inch thick reinforced concrete. The OWS has a 1,200 gallon capacity and is operated by gravity flow. This OWS was installed to receive waste from Building 1194 and is connected to a waste oil UST. Effluent from the OWS is discharged to the sanitary sewer.	1982 startup date, the unit is currently operational (as of 1998)	Floor washings consisting of wastewater contaminated with diesel fuel JP-4 and other petroleum related compounds from Building 1194
SWMU 36	Bldg. 1191 WAA	This former unit was an asphalt area used to store 55-gallon drums of waste from vehicle maintenance and the allied trade shop. Some drums were stored on wooden pallets and some were stored directly on the asphalt.	No startup date is available, waste is periodically stored in this area	7808 engine oil Waste oil Transmission fluids Hydraulic fluids Waste fuel Mogas Antifreeze
SWMU 37	Bldg 1191 Vehicle Maintenance Shop OWS	This unit consists of a main trench floor drain, underground conduits, and an OWS outside the building. Floor rinsate is washed down the drain, through the conduits, and into the OWS. The oil is then skimmed off the surface and the wastewater discharged to the storm sewer system. The trench is approximately 1 foot deep, 18 inches wide and 80 yards long. The OWS is a concrete box located below an asphalted area. The unit consists of two units, one for holding skimmed oil and the other for oil separation. The below ground conduits are reportedly constructed of concrete.	No startup date is available, the unit is currently not active.	Floor washings consisting of wastewater contaminated with chemicals used in vehicle maintenance. The contaminants include thinners and solvents, waste oil from gas and diesel engines, fuel, and antifreeze
SWMU 38	Bldg 1269 PCB Transformer Building	This unit consisted of the polychlorinated biphenyls (PCB) transformers storage space in Building 1269. It consisted of one room with metal walls and roof and a concrete floor. Its sides were approximately 18 feet long, the floor sloped inward from the door and loading area, and the room had no drains.	1984 startup date No data on file to support this unit's current operational status	Transformers containing PCBs and waste PCB oil

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 39	Bldg. 1643 WAA	This unit was paved with asphalt and contained a 200-gallon waste oil trailer, 55-gallon drums, and smaller containers on top of wooden pallets. The area was surrounded by bags of sand piled two high. Several 25-gallon containers were stacked in a locked cage measuring 3 feet wide by 6 feet long, located just outside of the sand bag area. Surface runoff in the area washed into storm water drains. No waste is currently stored in this area.	1982 – 1990	Waste oil PD-680 Hydraulic fluid JP-4 Stripper
SWMU 40	Bldg. 1643 OWS	This unit consists of floor drains, underground conduits, and two OWSs, one on the north side and one on the south side of the building. There are two east/west trench drains in the main hanger. Wastewater flows from the concrete floor in the building to the drains and then to the OWS units via concrete conduits. The separators consist of metallic boxes installed in bare ground. Each unit is surrounded by a concrete curb. The areas where the OWSs are located are paved with asphalt. The northern separator is approximately 6 feet wide by 15 feet long. The southern separator is approximately 21 feet long. Water from these separators flows to the base storm water system.	No startup date is available, the unit is currently not operational	Floor washings that consisted of wastewater contaminated with chemicals used in aircraft maintenance. These include PD-680, JP-4, hydraulic fluid, engine oil, and carbon remover
SWMU 41	Bldg. 1414 OWS System Field Maintenance Squadron AGE	This unit consists of floor drains, underground conduits, and an OWS located just outside the northwest side of the building. There are three drains in the building, two of these are trench drains 1.5 feet wide and the third is a 1/2-foot by 1-foot floor drain. Underground conduits connect the floor drains to the OWS. The building floor is sloped towards the drains and is constructed of concrete as well as the drainage trenches. The OWS is a 7-8-foot long and 4-foot wide concrete box in an asphalt covered area. The OWS has two compartments, each accessible by a manhole. One holds hydrocarbon contaminated wastewater and the other skimmed oil. The separated water is discharged to the storm sewer system.	No startup date is available and the unit is currently active (as of 1998)	Equipment washings as well as runoff from spills on the building floor from equipment maintenance. The waste mainly consists of wastewater contaminated with hydraulic fluid, antifreeze, JP-4, engine oil, grease, and degreasers

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 42	Bldg. 1414 WAA	This unit was a 20-foot by 20-foot area located on asphalt pavement Waste generated from the AGE and nondestructive inspection shops, and possibly from corrosion control operations of AGE equipment. Chemical waste was stored in 55-gallon carbon steel drums and later pumped out by the contractor. Waste oil was stored in a 500-gallon browser set on the ground and surrounded by sand bags piled two high. Surface runoff washed into storm water drains.	1982 – 1990	PD-680 (Type II) and fuels Synthetic oils and antifreeze Waste hydraulic fluids Oils, penetrant, and emulsifier 1,1,1-trichloroethane (1,1,1-TCA)
SWMU 43	Bldg. 1414 NDI WAA	This unit consisted of two metal carboys in the Non-Destructive Inspection Lab, Building 1414. One was a 5-gallon can where waste oil was poured. The other was for trichloroethane-contaminated rags. The waste oil was disposed of in SWMU 42 and the rags in a SWMU 4 dumpster. The lab floor is constructed of concrete.	No startup date is available, end of service date not available	Waste oil 1,1,1-TCA-contaminated rags.
SWMU 44	Bldg. 1027 OWS at the Aircraft Washing Hangar	This unit consists of a network of floor drains in the hangar, underground trenches, and an OWS outside the building. Rinsate from the aircraft washing flows down the floor drains and is channeled to the OWS. The hangar floor and drainage system are constructed of concrete. The OWS is made up of below-grade concrete box approx. 15 feet long by 6 feet wide and divided into two compartments. Each compartment can be accessed from the top through manhole covers. This separator channels waste oil to the nearby SWMU 45 holding tank and then releases water to the storm sewer system.	1987 - present (as of 1998)	Aircraft wash rinsate PD-680 Engine oils Other hydrocarbon wastes (grease etc )
SWMU 45	Bldg. 1027 Waste Oil Tank Vault at the Aircraft Washing Hangar	This purported unit was reportedly located just outside the south end of Building 1027, approximately 30 feet from the Building 1027 OWS. This unit was reported to be a 8-foot wide by 8-foot deep concrete vault holding a carbon steel UST for the storage of waste oils channeled from the OWS. Field evidence has shown that a nearby sanitary sewer lift station was mistakenly identified as SWMU 45 and SWMU 45 never existed.	Unit does not exist	None

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 46	Bldg 1027 WAA	This unit consisted of the area outside Building 1027. Hazardous wastes generated in the building were drummed in 55-gallon drums and held in this area until picked up. The areas surrounding the building were mostly paved with concrete. The waste drums were stored on the edge of the concrete pad next to an unpaved area. These drums were transferred to SWMU 51.	No startup date is available, end of service date not available.	Contaminated JP-4, PD-680 Chemical wash products consisting mainly of complex hydrocarbons
SWMU 47	Bldg 1015 Jet Engine Test Cell OWS System	This unit is located just outside Building 1015. Floor drains route runoff from the building floor to this unit. The 600-gallon OWS consists of a below-grade concrete box in two compartments of equal size. One compartment holds the skimmed oil and the other the hydrocarbon-contaminated wastewater. The separated water is discharged to the storm water sewer. Each compartment is accessible by a manhole cover.	1965 - present (as of 1998)	Hydrocarbon-contaminated runoff containing hydraulic fluid, JP-4, and engine lubricating oil.
SWMU 48	Building 1048 Fuel System Floor Drains	This unit consisted of several floor drains inside Building 1048 that received waste from spills on the floor. The floor as well as the drains were constructed of concrete and discharged to the storm sewer system. Fuel from fuel spills was washed down the drains.	No startup date is available, end of service date not available.	Jet fuel rinsate
SWMU 49	Aircraft Washing Area 1	This was a large rectangular space used for washing aircraft. This area was located within the explosive safety clear zone outside Building 1048. It was approximately 300 feet in length and 150 feet in width surrounded by a 6-inch tall berm. There was a 200-foot wide opening on each of the sides of the berm to allow aircraft to enter and exit. The ground was completely covered with asphalt and within the boundaries of the unit, sloped towards the center drain. This drain was a 2-foot by 2-foot metal grid. This drain discharged through conduits to SWMU 53 and was constructed of concrete.	1955 startup date, end of service date not available.	Rinsate from aircraft washing operations along with storm water runoff. Rinsate consisted of soaps and PD-680.

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 50	Aircraft Washing Area 2	This unit was located southwest of Building 1410 in the central portion of the base. This unit served as a wash rack that collected wastewater resulting from cleaning and maintenance activities for aircraft. There is a 3-foot wide by 75-foot long drain at the unit that discharges to the storm sewer system to SWMU 53.	Startup date is not available. The unit ceased operation between 1992 and 1996.	Wash water containing soaps and PD-680. Currently the unit would only manage storm water runoff from the nearby parking lot.
SWMU 51	Bldg 1190 Central Waste Holding	This unit consisted of three clusters of 55-gallon drums located within the fenced area surrounding Building 1190. Cluster 1, located next to the western fence, was comprised of approximately 50 empty drums. Cluster 2, located in the center of the fenced area, consisted of approximately 60 drums of wastewater from facility monitoring wells. Cluster 3, located adjacent to the SWMU 52 OWS, consisted of approximately 15 drums containing PD-680 and xylene placed on wooden pallets on top of asphalt. No waste is currently stored at this unit.	No startup date is available. A new storage shed was built over cluster 2 in 1990. The unit has not been active since 1990.	PD-680 Xylene Waste water from facility monitoring wells
SWMU 52	Bldg 1190 OWS System	This unit is located next to Bldg 1190 and provides final separation for wastewater from the storm sewer system before going to SWMU 54. The OWS consists of two independent concrete structures, situated at different levels, one higher than the other. The upper level consists of a rectangular basin 7 feet wide, 5 feet deep, and 10 feet long. The lower level is a rectangular basin 16 feet deep, 18 feet long, and 8 feet wide. Surface water from the area surrounding Bldg 1190 collects in a basin which flows into the upper level of the separator.	No startup date is available. The unit has been operational as of 1998.	Storm water runoff from various parts of the facility which may contain oily substances and may be contaminated by engine oil, PD-680, fuel, hydraulic fluid, antifreeze, etc.
SWMU 53	Storm Water Drainage System	This area was formerly a drainage ditch that was unlined from its point of origin and intersected at the POL Tank Farm and became a concrete-lined channel. Historically, discharges to SWMU 53 included washrack wastes from SWMU 49 and 50. Currently, SWMU 53 is fully operational, paved, and receives wastewater discharge from SWMU 52.	1942 - present	Surface water runoff potentially containing traces of JP-4, fuel, oils, pesticides, solvents, soap, PD-680, and xylene.



**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 54	Storm Water Interceptors	This unit consists of five separate storm water interceptors. Each of these five concrete vault units was designed to collect volumes of effluent from storm water pathways and redirect that flow through an oil/water separator before it discharges into surface waters. These units are designed to be slow-flow units with normal non-rainfall flow going to SWMU 55 and high rainfall flow being diverted directly to the nearby surface waters. The five interceptors are designated as 001, 003, 004, 005, and 006 and are located at various locations around the base. Under normal conditions, all flow is directed to the 004 interceptor before going to SWMU 55.	1977 startup date. The units are not currently operational.	Waste water containing oily contaminants and hydrocarbons.
SWMU 55	East Gate OWS	This unit is an OWS located approximately 300-feet west of the West Fork Trinity River and consists of two adjoining 64- by 16-foot concrete-lined basins each with a 3-foot by 16-foot oil containment compartment. A ramp is located within the structure for removal of sediment. A valving system allows one cell to be inactive while the other remains active. Following separation of the oil phase, wastewater flows to a common drain and through a pipe to a discharge point downstream from the SWMU 54 004 interceptor overflow flume. This is then discharged to the West Fork Trinity River. The discharge is monitored under a National Pollution Discharge Elimination System (NPDES) Permit.	1977 startup date The unit is not currently operational.	Wastewater containing oily contaminants and hydrocarbons.
SWMU 56	Bldg 1405 WAA	This unit consisted of one 55-gallon drum on a wooden pallet inside Building 1405. Building 1405 is an airplane hangar where small-scale "touch up" painting of airplanes took place. Waste from this process was stored in this drum for removal. Prior to removal from the site, it was transferred to SWMU 51.	1940s startup date End of service date not available	Polyurethane waste paint and thinners

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 57	Bldg 1432/1434 WAA	This unit was an outdoor container storage area consisting of a concrete pad approximately 4 feet wide by 7 feet long by 3 inches thick. 55-gallon drums were stored on this pad with sand bags placed around them	No startup date is available The end of service date is not available	Diethylene glycol Waste hydraulic oil Antifreeze Cleaner/degreaser
SWMU 58*	Pesticide Runse Area	This was a small concrete pad used to rinse off pesticide spray equipment The unit was located next to the golf course maintenance building and adjacent to Farmers Branch Creek The wastewater from the equipment rinsing flowed over a grassy area for approximately 30 feet to Farmers Branch Creek	No startup date is available The unit is no longer operational	Pesticides diazinon and monosodium methyl arsenate mixed with water
SWMU 59*	Bldg 8503 WSA WAA	This unit consisted of one 55-gallon drum on a wooden pallet outdoors The unit was not covered or barricaded. The unit was located on concrete adjacent to a grassy area that sloped towards a drainage ditch approximately 30 feet away The unit received wastes generated from Inspection Shop activities inside Building 8503 Shop activities included removing rust and repainting bombs Waste from this unit was picked up and transported to SWMU 53	1987 startup date available The end of service date is not available.	Naphtha-based paint thinner and paint
SWMU 60*	Bldg 8503 Radioactive Waste Burial Site	This unit is located approximately 400 feet west of Bldg 8503 This unit consists of three dry wells constructed from 12-inch diameter cast iron pipes encased in 2 25-inches of grout The pipes are vertically imbedded about 18 feet in the ground The area around the pipes is fenced with a locked gate The unit is located approx 100 yards from a farm pond. The wells are permanently capped	1957 – 1969	Plutonium-contaminated swipe samples Rubber gloves Paper bags Uranium oxide
SWMU 61	Bldg 1320 Power Production Maintenance Facility WAA	This unit is a gravel-based outdoor container storage area that held 55-gallon drums, placed on wooden pallets, set on railroad ties The area was uncovered and lacked a berm or secondary containment Waste generated from Building 1320, the power production maintenance facility, was collected and stored in either drums or a browser which was periodically pumped out by the contractor	1982 – 1990	Waste antifreeze Gasoline and diesel fuel Engine oil PD-690 (Type II) Solvents

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 62	Landfill 6	This former landfill is approximately 2.3 acres in size and is located between the golf course and the flightline perimeter road and directly west of Building 1021 and 1026. It is approximately 500-feet from Farmers Branch Creek. The site was originally a gravel pit used for base construction materials. After the gravel was removed, it was used for the burial of construction-related waste. The unit is now covered.	1975 – 1978	Construction rubble, trees, and miscellaneous trash Several drums of hydraulic fluid
SWMU 63	Entomology Dry Well	This unit is a dry well formerly located immediately to the west of the old entomology shed (Building 133) in the present Civil Engineering Compound. The unit was used for the disposal of pesticide- and herbicide-contaminated rinse water. The site is currently vacant.	1965 – 1981	Pesticide- and herbicide-contaminated rinse water Chemicals rinsed out included malathion, diazinon, dursban, and chlordane.
SWMU 64	French Underdrain System	This area consisted of a below ground drainage collection system of approximately 420 feet of 6-inch diameter corrugated metal pipe that ran parallel to the base sanitary sewer line. Site research shows that the northern end of the SWMU begins at the location of a small manhole cover located inside the gate of area of concern (AOC) 6. The piping ran southeast beneath a paved parking lot near AOC 7 (Former Base Refueling Area). The south end of the SWMU formerly consisted of an interceptor box and a pumphouse. These were replaced in the mid 1960's with SWMU 67. The entire underdrain system has been removed and no longer exists.	The estimated startup date is the early 1960's. The unit is no longer in service.	Hydrocarbon wastes
SWMU 65*	WSA Disposal Site	This unit is an area of bare ground west of Building 8503 within the Weapons Storage Area. The area was used for occasional dumping of waste cleaner and solvents.	Startup date is not available. The site is no longer operational.	Paint thinners and TCE

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
SWMU 66*	Sanitary Sewer System	This unit consists of a network of underground pipes. The sanitary sewer system collects sanitary wastewater and some industrial wastewater from SWMU 13. The wastewater is then pumped to the City of Fort Worth for treatment. The sanitary sewer system handles discharges from the 21 OWS in the industrial area of the base.	1942 – present	Sanitary as well as industrial wastewater from throughout the facility
SWMU 67	Bldg. 1340 OWS	This unit is located near Building 1340 immediately south of the Civil Engineering yard. This OWS is connected to SWMU 64. Reportedly, groundwater entered the OWS and was not cleaned for a number of years and contained hydrocarbon constituents. The overflow from the OWS discharges to a ditch which is part of SWMU 53.	No startup date is available and the unit is currently active.	Hydrocarbon fuels.
SWMU 68	POL Tank Farm	This unit is a major fuel storage area located on the eastern side of Carswell AFB near SWMU 52. The tank farm consists of two 840,000-gallon tanks containing JP-4 fuel. Fuels to the tanks are delivered to the tanks by truck and pumped by pipeline to the flightline fuel pumphouses.	Early 1960s to present	JP-8
AOC 1	Bldg. 1518 Service Station	This unit consisted of a former base gas station and a former base service station. The base gas station was located on Davison Drive and consisted of six ASTs. Three ASTs were used for storage of leaded gasoline, two for unleaded gasoline, and one for diesel fuel. These ASTs were removed from service in February 1994. The base service station was located along Military Parkway at Davison Drive and consisted of four USTs for storage of unleaded gasoline. These USTs were removed from service in May 1993.	Base service station terminated service in 1992.	Leaded and unleaded gasoline Diesel fuel

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
AOC 2	Airfield Groundwater Plume	The area is defined as all areas on NAS Fort Worth JRB where TCE is detected in groundwater. The generalized extent of TCE contamination considered as AOC 2 has been generally referred to as consisting of three lobes: a southern lobe, a central lobe, and a northern lobe. Groundwater contamination is not limited to TCE and may include other contaminants, in particular those related to activities involving fuel products (specifically benzene, toluene, ethylbenzene, and xylene [BTEX] compounds).	N/A	TCE and BTEX Compounds
AOC 3	Waste Oil Dump	The site is located on a gently sloping terrace on the west side of the West Fork of the Trinity River. The site was reportedly used as a disposal pit for used oil filters and other items used in routine vehicle maintenance.	No startup date is available, end of service date not available	Miscellaneous routine automotive wastes such as oil filters, and oil
AOC 4	Fuel Hydrant System	The area consists of approximately 20,000 feet of 3, 6, and 8-inch diameter steel pipeline comprising five pumping stations, each with six 25,000-gallon USTs, a filtering system, a delivery pump, and a shelter. Each station served several refueling hydrants on the edge of the Alert Apron. Interim remedial action (IRA) at the fuel hydrant system began in 1992 when pumping station E and its associated piping were removed by the USACE. During the summer of 1994, the USACE removed pumping stations A, B, and D under a second IRA project. Pumping station C was later removed in 1995 by Jacobs Engineering. Numerous other Installation Restoration Program investigations have been conducted at the AOC.	1942 startup date, end of service date not available. The fuel hydrant system was installed when the base was originally constructed and was expanded during the past 50 years of Air Force activity.	Jet fuel

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
AOC 5*	Grounds Maintenance Yard	The site is located in the southwest corner of Carswell AFB near the main entrance. It is a predominantly graveled yard, with some areas of asphalt pavement, two small maintenance buildings, a pesticide storage shed, two 500-gallon above ground storage tanks located on a concrete pad, and two office trailers. Past operation include storage and maintenance of grounds keeping equipment, and storage of pesticides, solvents and fuels.	ND	Various pesticides and wash water containing pesticides Fuels and petroleum products Solvents
AOC 6	RV Storage Area	This area is a large fenced Recreation Vehicle (RV) parking lot of compacted gravel that has been used to store various motor homes, boats, and other recreational equipment. The RV vehicles were also maintained at the site.	No startup date is available. The unit is still active	Waste oils Fuels Antifreeze Paints and thinners Solvents
AOC 7	Former Base Refueling Area	This area consists of a paved lot near an abandoned gasoline station	The startup date is not available. The unit ceased operation in the early 1970s	Various fuels
AOC 8*	SW Aerospace Museum	The AMS is located along Spur 341, west of the North-South primary instrument runway, south of AFP-4 and adjacent to Farmers Branch Creek. The 12.5 acre museum site has been used for display of various aircraft, vehicles, and storage equipment. Records indicate that an asphalt batching plant also previously existed on the site. In addition, a B-52 bomber was previously stored and dismantled at the site, resulting in small chips of aircraft skin being buried in the surface soil.	1985 to present	Various fuels and petroleum products Paints Transformers containing PCBs Possible aircraft rinseate
AOC 9*	Golf Course Maintenance Yard	The golf course maintenance yard consists of an area approximately one-half acre in size. Several structures occupy the yard, including a wooden pole barn and metal carport for storage, a metal building used as an office, an work area, and a concrete pad containing an aboveground fuel tank. The entire yard is fenced and composed of dirt and gravel.	1985 to present	Various fuels and petroleum products Pesticides and herbicides

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
AOC 10	Bldg 1064 OWS	This unit is located adjacent to the south edge of Building 1064. This OWS has a 18,000-gallon capacity and was designed to treat spills from refueling operations at the Building 1064 fueling station. The Building 1064 storm sewer contributes influent to the unit. The area surrounding the unit is covered with grass.	Late 1980s to present (1998)	Wash water containing petroleum products
AOC 11	Bldg 1060 OWS	This unit is located adjacent to the west corner of Building 1060. This OWS has a 500-gallon capacity and is connected to a 250-gallon belowground overflow tank. This unit was installed to service Building 1060 operations.	The startup date is not available. The unit is currently active (1998).	Wash water containing petroleum products.
AOC 12	Bldg 4210 OWS	This unit is adjacent to Building 4210, the bomb assembly building which is located in the flight line area adjacent to the north-south taxiway and taxiway C. This OWS operates by gravity flow and is a below ground reinforced concrete vault near the ground surface with a capacity of 3,500-gallons. The OWS is located near an area vegetated with grass.	The startup date is not available. The unit is currently active (1998).	Waste water containing jet fuel Lubricants Petroleum products from Building 4210
AOC 13	Bldg 1145 OWS	This unit was located approximately 15-feet south of Building 1145. The OWS was a concrete vault operated by gravity flow and connected to the sanitary sewer system. Building 1145 is used as a vehicle maintenance and auto hobby shop. The separator was built flush to the paved surface of 8-inch reinforced concrete. This unit was a 1,500-gallon capacity and was used to treat wastewater collected in the Building 1145 floor drains. The separator was connected to a 1,050-gallon double-walled underground oil tank. The unit was removed and replaced with a new OWS in 2000.	1982 – 2000	Engine lubricating oil Brake fluid Grease and petroleum byproducts.
AOC 14**	Unnamed Stream	This area is downgradient from SWMU 68 and is a tributary of Farmers Branch which discharges to the West Fork Trinity River. Prior to removal of the SWMU 67, the OWS discharged into this stream.	The startup date is not available. The unit ceased operation in 1996.	Discharges from SWMU 67 OWS which most likely consisted of small quantities of fuel product

**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
AOC 15	Bldg 1190 Storage Shed	This area is a small storage shed located within the fenced area of SWMU 51. Small containers of waste oils, paints, and solvents may have been stored within the shed. No wastes are currently stored in this area.	No startup date is available. The unit is no longer used for storage.	Paints Oils. Solvents
AOC 16*	Family Camp	The area encompasses approximately 3 acres and is located northwest of the Roaring Springs/Highway 183 intersection. An investigation of the site was initiated due to concern that the unrestricted use of the area could have resulted in the disposal of non-domestic waste. However, based upon further review, the TNRCC concurred that a release of hazardous constituents was not indicated.	No startup date is available. The end of service date is not available.	Domestic waste
AOC 17	Suspected Former Landfill	This area is a suspected former landfill identified by aerial photography. Its operational history is unknown. Currently, the surface is covered partially by grass and partially by a parking lot.	Estimated 1942 – 1944	Suspected to have received construction debris, waste paints contaminated with thinners/solvents, and oils
AOC 18	Suspected Fire Training Area A	This area was identified on aerial photographs as a suspected fire training area. Currently, the area is covered partially by Building 1067, a variety of sheds, asphalt parking lot, and grass.	Estimated date 1950's to early 1960's	May have received various fuels, oils, solvents, and cleaners
AOC 19	Suspected Fire Training Area B	This area is a suspected former fire training area identified on aerial photographs and is currently covered by grass.	Estimated date 1950's to early 1960's	May have received various fuels, oils, solvents, and cleaners



**Table 1.4**  
**Source Information for SWMUs and AOCs**

<b>SWMU/ AOC</b>	<b>Name</b>	<b>Unit Description</b>	<b>Dates of Service</b>	<b>Source (Wastes Managed)</b>
AOC 20	Paleo Channel	AOC 20 is incised in the bedrock surface (Goodland Formation), underlying the shallow Terrace alluvium aquifer. The principal former tributary valley of the ancestral Trinity River begins at Air Force Plant 4 (AFP 4) under building 181 and runs eastward under the Carswell flightline and a secondary paleo channel runs towards the Carswell Golf Course (realignment property). The paleo channel is presumably a preferential pathway for TCE migration in groundwater which has potentially contributed to the southern lobe of the base-wide TCE plume.	N/A	TCE contaminated groundwater

**Notes**

- \* BRAC Sites
- # BRAC Sites being transferred to AFCEE for management under DERA per 2002 MOU
- AOC Area of Concern
- AGE Aerospace Ground Equipment
- NA Information Not Available
- N/A Not Applicable
- ND No Data Available
- NDI Non-Destructive Inspection
- OWS Oil/Water Separator
- PCB Polychlorinated Biphenyl
- POL Petroleum/Oil/Lubricant
- SWMU Solid Waste Management Unit
- TCE Trichloroethylene
- WAA Waste Accumulation Area
- Source U S Air Force, 2001a

**Table 1.5**  
**History of Installation Operations**

Period	Type of Operation	Primary Aircraft	Hazardous Substance Activities
Pre-1942	Woods and pastures	None	Unknown
1942-1946	Bomber training base	B-24, B-25, B-26, B-32	Most waste oils, recovered fuels, spent solvents, and cleaners burned at fire training areas, some disposed of through contractor removal, landfill disposal, and discharge to storm and sanitary sewers
1946-1948	Bomber training base	B-29	
1948-1958	Bomber training base	B-36B, B-36D	
1958-1964	Bomber training base and air refueling operations	B-52D, B-58, KC-135	
1964-1968	Bomber training base and air refueling operations	B-52D, KC-135	
1968-1971	Bomber training base and air refueling operations	B-52D, KC-135, FB-11	
1971-1975	Bomber training base and air refueling operations	B-52D, KC-135, F-4	Most waste oils, spent solvents, and cleaners disposed of through contractor removal; recovered JP-4 stored and burned at fire training area, some waste disposed of in landfills or sanitary drains
1975-1982	Bomber training base and air refueling operations	B-52D, KC-135, F-4	Most waste oils, spent solvents, and cleaners removed through service contract, recovered JP-4 stored and burned at fire training area; PD-680 discharged to OWSs
1982-1994	Bomber training base and air refueling operations	B-52D, B-52H, KC-135, F-4	Most waste oils, solvents, and cleaners collected and stored at accumulation points and disposed of through DRMO, recovered JP-4 stored and burned at fire training area, waste oils and PD-680 recovered from OWSs disposed of through DRMO
1994-2001	National Defense, repair and maintenance of aircraft and aircraft engines, training of reserves	FA-18, C-130, C-9, C-12, F-16	Most waste oils, solvents, and cleaners disposed of through contractor removal. Recovered fuel is disposed of through contractor removal. Waste oils and sludges recovered from OWSs disposed of through contractor removal.

**Notes**

DRMO Defense Reutilization and Marketing Office

OWS Oil/Water Separator

Sources U.S. Air Force 1995a, p. 1-6, U.S. Air Force, 2001a

# TAB

*SECTION 2.0*

---

## **2.0 ENVIRONMENTAL RESTORATION PROGRAM STATUS**

This section provides a status report of the environmental restoration program at the NAS Fort Worth JRB, associated activities and summarizes regulatory agency and community involvement with these programs to date.

### **2.1 RESTORATION PROGRAM STATUS**

The IRP is designed to identify and fully evaluate suspected problems associated with past hazardous material disposal sites on DOD facilities and to “control migration of hazardous contamination from such facilities, and control hazards to health and welfare”. The investigation and remediation phases of this program closely parallel those developed under CERCLA and RCRA. NAS Fort Worth JRB is a RCRA permitted facility. In addition the restoration program at NAS Fort Worth JRB follows all CERCLA and Air Force public participation procedures and guidance. It is Air Force policy to address IRP sites at all installations in a manner consistent with all the applicable regulatory guidance and policies. In the case of NAS Fort Worth JRB, implementing the RCRA program requirements directly satisfies the requirements of its IRP.

The Air Force makes all efforts to consider and incorporate regulatory input in all base investigation and restoration activities. Progress under the IRP is closely coordinated and monitored by various regulatory agencies at the federal, state, and local levels. Agreements with, and enforcement action orders from these agencies can significantly affect IRP efforts. The former Carswell AFB IRP also has a very well structured community relations component, which actively encourages public participation in all environmental restoration and property transfer efforts at the base.

#### **2.1.1 Summary of Regulatory Drivers**

##### **2.1.1.1 Texas Risk Reduction Program/ TNRCC Risk Reduction Rules/RCRA Corrective Action Process**

The TNRCC adopted a new rule, the Texas Risk Reduction Program (TRRP), in September 1999. The rule most commonly regulates the cleanup and management of hazardous wastes and substances, referred to as chemicals of concern (COCs), which are released into the environment from regulated commercial and industrial facilities, and on the closure of waste management facility components (e.g., tanks, container storage areas, surface impoundments) at locations that are regulated under certain state programs including the Industrial Solid Waste and Municipal Hazardous Waste Program and the State Superfund Program. Releases from municipal landfills regulated by 40 Code of Federal Regulations (CFR) are not generally subject to the TRRP, unless, the TNRCC establishes an alternative health-based groundwater protection standard for a COC in accordance with 30 TAC 330.235(i) (relating to Assessment Monitoring Program). The TRRP which is found at 30 TAC 350 TRRP became effective on May 1, 2000, except for the Petroleum Storage Tank (PST) Program, which has an effective date of September 1, 2003. The rule specifies the assessment, monitoring, cleanup, reporting, and post-response action care and

financial assurance requirements that the response actions and waste management unit closures must meet.

Response actions and waste management unit closures at NAS Fort Worth JRB have been conducted primarily per the predecessor to the TRRP, namely the TNRCC's Risk Reduction Rule (RRR) in concert with the Texas Solid Waste Disposal Act (TSWDA), 30 TAC 335.167, 40 CFR 270.14(d) and Section 3004(u) of the Hazardous and Solid Waste Amendments of 1984 (HSWA) 30 TAC 335.167 of the TSWDA, 40 CFR 270.14(d) and Section 3004(u) of HSWA require that each interim and permitted hazardous waste management facility implements a corrective action for all releases of hazardous waste or 40 CFR 261 Appendix VIII hazardous constituents from any SWMU or AOC<sup>2</sup> at the facility, regardless of the time at which waste was placed in such unit. The U.S. EPA's interpretation of this requirement resulted in a Corrective Action process that begins with a RCRA Facility Assessment (RFA) to determine if corrective action is necessary. These corrective actions are intended to address unregulated releases of hazardous constituents to air, surface water, soil, and groundwater, as well as the generation of subsurface gas.

The first step in the RFA is the development of a Preliminary Review (PR) from all available documentation for a facility. The PR compiles available information on every SWMU that has ever existed at the facility. A unit checklist is completed for each SWMU. On a unit-by-unit basis, the PR may recommend no further action for (1) well-designed and well-managed units, (2) units that have not managed hazardous wastes or wastes containing hazardous constituents, (3) units already under corrective action by enforcement order, (4) units scheduled to be addressed in a compliance plan, or (5) units which are RCRA regulated units and will be authorized in a hazardous waste permit.

If there is a known release or potential for a release of hazardous waste or hazardous constituents from a unit, the PR may recommend a RCRA Facility Investigation (RFI) to determine the extent of the release for future corrective action, or stabilization as an appropriate and immediate corrective action.

The second step is a Visual Site Inspection (VSI) of the entire facility. The RFA is the combination of the PR and VSI documentation and any sample results. The RFA includes recommendations for whether a RCRA Facility Investigation (RFI) or corrective action is warranted. While the RFI is ongoing, if it is determined that hazardous waste releases from SWMU or AOC poses an ongoing risk to human health or the environment, an interim measure may be taken to control the risk. If the interim measure involves remediation, it is referred to as an Interim Remedial Action (IRA). An IRA, which is a short-term action can include a wide

---

<sup>2</sup> For the purposes of HSWA Corrective Action, a SWMU may include, but is not limited to, any landfill, surface impoundment, land treatment unit, waste pile, underground injection well, incinerator, boiler, industrial furnace, tank, container storage area, drip pad, containment building, miscellaneous unit, any units exempt from hazardous waste permitting requirements, such as wastewater treatment units, elementary neutralization units, totally enclosed treatment units, waste recycle/reuse units, and 90-day accumulation time units, or process units into which solid wastes have been placed or areas into which solid wastes have been routinely and systematically released (e.g., process drainage ditches or product storage tanks). An AOC is a discrete area of suspected contaminations identified in a preliminary review/visual site inspection or equivalent phase of remedial investigation.

range of activities such as removing the source of the contamination or fencing the contaminated area.

The requirement for an RFI or any other corrective action is included as a requirement in a facility's RCRA permit, in an associated compliance plan that is mandatory for facilities with known ground-water contamination. The RFI is required to comply with all the applicable items contained in the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994 (U.S. EPA, 1994) and the TNRCC's Risk Reduction Standards rule found at 30 TAC 335, Subchapter S.

If the RFI Report does not indicate the releases of hazardous waste or hazardous constituents, from a SWMU or AOC then the facility may request closure (i.e., no further action [NFA]) for that SWMU or AOC. However, if the report indicates a release of hazardous waste or hazardous constituents, from a SWMU or AOC then the facility is required to conduct a remedial action (RA) and submit a report that documents attainment of either Risk Reduction Standard (RRS) Number 1 (Closure/Remediation to Background) or RRS Number 2 (Closure/Remediation to Health-Based Standards and Criteria) as described in 30 TAC 335.554 and 30 TAC 335.555 respectively. Deed recordation, as described in 30 TAC 335.560 is also required for closure under RRS No. 2. The facility is released from post-closure care responsibilities upon acceptance by the executive director of the proof of deed certification. If the SWMU or AOC cannot be closed using RRS No. 1 or RRS No. 2, then the facility is required to close under RRS No. 3 (Closure/Remediation With Controls). Closure under RRS No. 3 requires the submittal of a Baseline Risk Assessment (BLRA)/Corrective Measures Study (CMS) Report. The BLRA/CMS Report evaluates the risk, identifies and evaluates corrective measure alternatives, and recommends appropriate corrective measure(s) to protect human health and the environment. The BLRA/CMS Report is also required to address all of the applicable items in U.S. EPA's RCRA Corrective Action Plan (U.S. EPA, 1994) guidance and 30 TAC 335.553(b).

Upon approval of the CMS Report, the facility is required to submit a Corrective Measures Implementation (CMI) Workplan to address all of the items for a CMI Workplan contained in the U.S. EPA's RCRA Corrective Action Plan (U.S. EPA, 1994) guidance. The workplan is required to contain detailed final engineering design, monitoring plans, and schedules necessary to implement the selected remedy. TNRCC public participation guidance, which became effective on August 1, 2001, requires that the public be offered an opportunity to comment on the proposed corrective measure. After the 60-day comment period, which is followed by the installation of a corrective action system based upon the approved CMI Workplan, the facility is required to submit a CMI Report that includes as-built drawings of the corrective action system. To report the progress of the corrective measures, the facility is required to submit periodic CMI Progress Reports in accordance with an approved schedule. The facility is also required to comply with the deed recordation requirements of 30 TAC 335.566 for closure under RRS No. 3.

The TRRP was established in September 1999 to keep pace with advancements in the science of setting environmental cleanup levels, to clarify and further develop provisions that were contained within former rules (e.g., the RRS), and to create one set of rules that could be universally applied to environmental releases covered under the different TNRCC remediation programs. The TRRP closure process involves the following steps:

- Conducting of an investigation to determine whether a release of COCs has occurred at a SWMU or AOC. If no release has occurred then a RFI report documenting the results of the investigation and requesting closure is prepared.
- Conducting of an Affected Property Assessment (APA) if it is determined that a release has occurred. This involves a detailed investigation to determine the nature and extent of COCs released to environmental media; classification of the media in accordance with criteria defined in the rule (e.g., land use must be classified as either residential or commercial/industrial) to ensure the establishment of proper cleanup levels and cleanup requirements; documentation of results in a Affected Property Assessment Report (APAR); notification of owners of properties that were sampled or affected by COCs and people who may potentially be exposed to levels of COCs that could pose a risk that critical information is available.
- Establishment of cleanup levels that are protective of human health and the environment referred to as protective concentration levels (PCLs) in the TRRP rule.
- Cleanup or control of COCs that are found in concentrations higher than the calculated PCLs using Remedy Standard A or Remedy Standard B found in 30 TAC 350.31-350.33 and 350.37. Remedy Standard A, a cleanup option may be self initiated or implemented by a facility without seeking prior approval from the TNRCC so long as a Self Implementation Notice (SIN) is submitted to the TNRCC 10 calendar days before the actual cleanup begins. Remedy Standard B provides the option to control and manage the COCs such that their extent does not spread in an unauthorized manner and prevent exposures to COCs at levels above PCLs. If Remedy Standard B is used, then long-term monitoring will most likely be required, financial assurance may be required (NAS Fort Worth JRB, a federal facility is exempt from this requirement), and institutional controls (deed notices and restrictive covenants) must typically be filed in the county deed records. Submittal of a Response Action Plan (RAP) is required before Remedy Standard B can be implemented.
- Submittal of various reports, including a Response Action Complete Report (RACR), a Response Action Effectiveness Report (RAER), and a Post-Response Action Care Report (PRACR).

At the time the former Carswell AFB became an interim RCRA facility, its IRP was already in existence. Since the IRP investigation and remediation phases closely parallel those developed under RCRA/RRS rule, implementation of the RCRA investigation and remediation actions at Carswell AFB also fulfilled those aspects of the base's IRP. Although some similarities may also be drawn between the RCRA/RRS corrective action process and the TRRP closure process (e.g. the RFI under the RCRA/RRS corrective action process may be viewed as a combination of the release determination and APA phase of the TRRP closure process; the CMI Work Plan and RAP of both processes are similar; both processes require the submission of various reports), all SWMUs and AOCs undergoing corrective action under the old RRS/RCRA Corrective Action process for which proof of attainment of a RRS was not submitted prior to the TRRP rule effective date of May 1, 2000, and any new sites which are uncovered after May 1, 2001 are required to be closed using the TRRP rules, unless either a TRRP exclusion applies or

grandfathering requirements of the rule are met. (TNRCC, 2000a, 2000b). In the case of NAS Fort Worth JRB, based on consultations with the TNRCC RPMs for NAS Fort Worth JRB, the entire base (including all the SWMUs and AOCs which were not closed before May 1, 2000) has been grandfathered and will therefore be closed under the old RRS rule (UNITEC, 2001b).

### **2.1.1.2 Defense Environmental Research Program/Memorandum of Agreements**

Other legal requirements for the NAS Fort Worth JRB IRP are the Defense Environmental Research Program (DERP), CERCLA, the National Contingency Plan (NCP), and agreements with different state and federal entities. The DERP was formally established by Congress in Title 10 United States Code (USC) 2701-2707 and 2810. The DERP provides centralized management and funding for the cleanup of DOD hazardous waste sites, except where funded by BRAC, consistent with the provisions of CERCLA, the NCP (40 Code of Federal Regulations 300), Executive Order 12580 (Superfund Implementation), and RCRA sections 3004v and 3008h for past activities at non-permitted DOD sites. The DERP also provides for building demolition, debris removal, and limited activities to reduce the amount of hazardous waste generated and disposed at DOD sites. Finally, the DERP provides for environmental restoration at DOD sites subject to RCRA Section 3004u, which gives the EPA or the state the authority to require a cleanup or a schedule for investigation and cleanup of releases of hazardous substances or constituents at solid waste management units on an installation seeking a RCRA permit for current hazardous waste operations, if the required RCRA corrective action meets the definition of a response action under CERCLA.

Two memorandums of understanding (MOUs) between the Air Force and the Navy outline the general terms under which the Air Force and Navy will conduct the environmental management of NAS Fort Worth JRB and specifies the working relationships between, and roles and responsibilities of, all DOD parties involved in conducting the restoration programs at the base (Booz-Allen & Hamilton, Inc., 1997, pp. 1-2). An additional MOU between AFCEE and AFBCA (The 2002 U.S. Air Force MOU; U. S. Air Force, 2002) updates the two entities' management and oversight responsibilities of contaminated sites at the former Carswell AFB and details the transfer of management of state and federal regulatory mandated actions (e.g., post-closure care requirements and RCRA permit updates) from the AFBCA to AFCEE.

In addition to the 2002 U.S. Air Force MOU, Appendix A contains the following MOUs between the U.S. Air Force and the Navy: a June 8-9, 1993, MOU, a September 23, 1994, MOU, a February 26, 1996, amendment to the original MOU, and a June 19, 1996, MOU as attachments to the February 1997 MOU concerning environmental compliance issues.

The June 1993 MOU established the procedure for the transfer of "host" responsibility of the base from the Air Force to the Navy. According to the MOU, the responsibility as host of the installation was to be transferred in increments from the Air Force to the Navy from September 30, 1993, until September 30, 1994 (U.S. Air Force, 1993b, p. 1).

On September 23, 1994, a second MOU was signed to amend the earlier one. This amendment declared that the Air Force would retain the "responsibility for the final remediation of all environmental conditions" while the Navy would assume host responsibilities for NAS Fort Worth JRB on October 1, 1994. If no agreement could be reached between the Air Force and the



Navy, then the Air Force would retain environmental restoration program responsibilities (U.S. Air Force, 1994b, pp. 1-2). On February 25, 1996, the Air Force amended the September 23, 1994, MOU stating that, because an agreement was not reached with the Navy, the Air Force would assume "both funding and management responsibilities for the cleanup of contamination at the NAS Fort Worth JRB attributable to Air Force operations prior to October 1, 1994" (U.S. Air Force, 1996c, p. 1).

On June 19, 1996, an MOU (June 1996 MOU) was executed stating that the Air Force and Navy had reached an agreement on the cleanup of NAS Fort Worth JRB. This MOU designated the responsibility of the each party as it pertained to the environmental cleanup (U.S. Air Force, 1996b, pp 1-2). The June 1996 MOU also stated that because BRAC funds could not legitimately be used for environmental cleanup of those areas at the former Carswell AFB that remained active (i.e., those areas within the NAS Fort Worth JRB boundary), the cleanup program was going to be completed using the Air Force allocation under the DERP using the Defense Environmental Restoration Account (DERA). The remaining areas outside the NAS Fort Worth JRB boundary, which were eventually going to be transferred to the public were still going to be managed using BRAC funds. As a result of the June 1996 MOU, the environmental programs at the NAS Fort Worth JRB are funded through both BRAC and DERA funds. It was agreed that AFCEE/ERD would act as the MAJCOM for the remediation of the DERA funded sites while AFBCA had responsibility for the BRAC funded sites. It should be noted however, that despite this MOU, AFBCA continued to manage IRP activities for six IRP sites, namely SWMUs 18, 23, 24, 25 and AOCs 5 and 14, which were within the NAS Fort Worth JRB boundary using BRAC funds.

The MOU signed in February 1997 detailed the responsibilities for environmental compliance for NAS Fort Worth JRB. The Air Force transferred to the Navy the responsibility of management and funding for all environmental compliance programs at NAS Fort Worth JRB. The MOU also listed those underground storage tanks (USTs) and aboveground storage tanks (ASTs) that are the responsibility of the Air Force to remediate and close (U.S. Air Force, 1997b, p. 2).

The Air Force has also entered into a Defense-State Memorandum of Agreement (MOA) with the U.S. EPA and TNRCC for regulatory oversight and document review on the remediation actions being conducted in accordance with the HSWA and the IRP at the former Carswell AFB. The ongoing environmental program at the NAS Fort Worth JRB is operating under this agreement, completed in 1998, under which the DOD provides financial reimbursement to the state of Texas for any staff time spent on projects for the NAS Fort Worth JRB (Booz-Allen & Hamilton, Inc., 1997, p. 16). This is to ensure that the Air Force practices quality cleanup efforts and environmental compliance (Booz-Allen & Hamilton, Inc., 1997, pp. 1-2).

In addition to the mentioned MOUs and MOAs, the AFBCA has begun a verbal partnering agreement with AFP 4 because contaminated groundwater has migrated east beyond the boundary of AFP 4 and onto the NAS Fort Worth JRB. This agreement delineates the responsibilities and procedures for implementing the cleanup of the contaminated groundwater at AFP 4. AFP 4 is responsible for cleaning up the trichloroethylene (TCE) groundwater plume migrating from AFP 4 towards the NAS Fort Worth JRB (U.S. Air Force, 1995a, p. 3-1).

### 2.1.2 IRP History/Status of Restoration Sites and Areas of Concern

In February 1984, an “IRP Records Search for Carswell AFB, Fort Worth, Texas (1984 IRP Records Search) was conducted utilizing funds from SAC to “identify and fully evaluate suspected problems associated with past hazardous material disposal sites” at the former Carswell AFB, a DOD facility and to “control migration of hazardous contamination” from the facility, “and control hazards to health and welfare” (CH2M Hill, 1984, p. ES-1).

The 1984 IRP Records Search identified potential problems at Carswell AFB by reviewing installation records, contacting various regulatory agencies for relevant documents pertaining to the search effort, conducting an on-site visit to interview more than 30 past and present employees, and arranging an aerial overflight by helicopter. A press release announced the study and solicited responses from the public pertaining to past disposal practices at Carswell AFB, the Instrument Landing Site, and the Off-Site WSA (CH2M Hill, 1984, pp. ES-1-ES-2).

Results of the 1984 IRP Records Search were as follows:

- identification of 17 disposal or spill sites at Carswell AFB and 5 sites at the Off-Site WSA
- ascertainment that an estimated 55,000 gallons a year of waste oils, fuels, solvents, and cleaners were generated at the base from the 1970s to 1983
- identification of the following past hazardous waste disposal practices:
  - disposal of waste oils, spent solvents, and cleaners during fire department training exercises (1942-1970)
  - removal of waste oils, spent solvents, and cleaners by contractors (1970-1982)
  - reuse and recycling of JP-4 fuel since 1979

The 1984 IRP Records Search did not find any evidence that hazardous contaminants were migrating outside the boundaries of Carswell AFB, although the following indirect evidence of contamination and/or contamination migration within the installation boundary was found:

- fuel and aircraft soap from wash racks were observed in the Flight Line Drainage Ditch.
- unburned fuels were seen on the ground at the site of the existing Fire Department Training Area 2.
- a petroleum/oil/lubricant sheen and odor were observed at the Unnamed Stream.

The surface water migration of hazardous contaminants was considered high due to the close proximity of identified sites to Farmers Branch Creek, the West Fork of the Trinity River, and Lake Worth (CH2M Hill, 1984, pp. ES-21-ES-8).

Following the 1984 IRP Records Search, a Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) was conducted for Carswell AFB in March 1989. The purpose of the RFA (1989 RFA) was to identify SWMUs and AOCs, determine the releases from them, and make preliminary determinations regarding any contamination of concern and whether further action was necessary. In addition, those SWMUs and AOCs that no longer posed a threat were screened from any further investigations. This 1989 RFA identified 68 SWMUs and 1 AOC and detailed the history of contaminant releases for each site (A.T. Kearney, 1989).

On February 7, 1991, the TNRCC issued a RCRA hazardous waste permit (HW-50289) to the former Carswell AFB for the operation of Container Storage Area. The Container Storage Area, which was managed by Carswell AFB's Defense Reutilization and Marketing Office (DRMO), served as a temporary storage unit for most of the waste generated at the base prior to being sent offsite for disposal or recycling. In accordance with the Hazardous and Solid Waste Act's Corrective Action Program, Carswell's 1991 RCRA permit also required a RCRA facility investigation (RFI) for 20 SWMUs to determine whether any hazardous constituents had been released into the environment (Texas Water Commission, 1991). Between February 1991 and February 1995, 48 additional SWMUs and 14 AOCs were added to the list of sites requiring investigation under the permit, resulting in a total of 68 SWMUs and 15 AOCs identified as requiring investigation at the former Carswell AFB (TNRCC, 1995).

On March 2, 1995, the TNRCC completed a review of all SWMUs and AOCs at NAS Fort Worth JRB in order to determine which sites were still subject to an RFI. The TNRCC based its determinations on its review of information from the following sources: the 1989 RFA (A.T. Kearney, 1989); Hazardous Waste Permit 50289; and decisions resulting from TNRCC's inspections of NAS Fort Worth JRB on June 15, 1994, July 29, 1994, and February 13, 1995. Based on its review, the TNRCC designated a total of 18 SWMUs and one AOC as units/sites requiring no further action (NFA), and the remaining 50 SWMUs and 14 AOCs as units/sites requiring investigations and/or corrective measures. These SWMUs and AOCs are described in a table attached to the TNRCC letter dated March 2, 1995 (TNRCC, 1995). Since March 1995 an additional 5 AOCs have been identified by the TNRCC and the Air Force as requiring investigations and/or corrective measures (U.S. Air Force, 2001a) resulting in a grand total of 68 SWMUs and 20 AOCs being identified as requiring an investigation and/or corrective action at the former Carswell AFB. Of these, 53 SWMUs and 15 AOCs are considered original DERA sites. The Container Storage Area was also certified as clean closed by the TNRCC in November 1999 (TNRCC, 1999).

In February 2001, an application was submitted by the Air Force requesting a renewal of the former Carswell AFB RCRA permit application (U.S. Air Force, 2001a). The permit application also requested the following amendments:

- a change in the name of the facility to NAS Fort Worth JRB, Formerly Carswell AFB,
- removal of the Container Storage Area, the only permitted unit at the site, from the permit,

- removal of SWMUs and AOCs which have been closed and/or require NFA from the permit, and
- inclusion in the permit of SWMUs and AOCs, which since the issuance of the original permit have been found to require an RFI or Corrective Action, but have not been closed.

A revised list of SWMUs and AOCs submitted with the RCRA permit renewal application indicated that out of the total 68 SWMUs and 19 AOCs identified as at February, 2001, as requiring investigations and/or corrective measures at the former Carswell AFB, 27 SWMUs and 5 AOCs had been closed, and another 41 SWMUs and 14 AOCs were at various phases of the TNRCC's Corrective Action process (U.S. Air Force, 2001a). After submittal of the permit renewal application an additional AOC (AOC 20) was added to the list of sites requiring a RFI. Also, 14 SWMUs and 7 AOCs have been closed, bringing the total of number closed sites to 41 SWMUs and 12 AOCs. Only one SWMU (SWMU 66 – Sanitary Sewer System) and one AOC (AOC 8 – Aerospace Museum) of the remaining 27 SWMUs and 8 AOCs, which are at various phases of the Corrective Action process, are BRAC funded sites (as it is categorized by the June 1996 MOU). It should be noted that one of the 27 remaining SWMUs (SWMU 24 – Waste Burial Area/Waste Pile 7), which is among the six original BRAC sites transferred to AFCEE by AFBCA, has been partially closed for soils but is currently undergoing a groundwater investigation using ERA funds. The locations of all SWMUs and AOCs identified so far at the former Carswell AFB are presented in Figures 2.1, 2.2, and 2.3.

Table 2.1 provides an updated list of the current corrective action status of all SWMUs and AOC identified to date at NAS Fort Worth JRB. Two undesignated sites, namely the Building 1655 OWS site and the Permeable Reactive Barrier (PRB) Wall site are also included in the list. A summary list, which categorizes the sites by their corrective action phase, is also provided in Table 2.2. The tables shows that the SWMUs and AOCs at NAS Fort Worth JRB include landfills, fire training areas, waste accumulation areas, OWSs, a radioactive waste site, USTs and ASTs, washracks and aircraft wash areas, sewer and drainage systems, PCB transformers, pesticides, and areas contaminated by spills or dumping. It should be noted that the tables lists sites that are managed under the BRAC cleanup program. These BRAC sites are included to give an overall picture of the past hazardous substance activities at NAS Fort Worth JRB and its contiguous and non-contiguous properties. As explained in Sections 1.2 and 2.1.1, those sites are investigated and remediated with BRAC funds by the AFBCA, and the current status of the continuing environmental restoration activities at the sites are documented in a BRAC Cleanup Plan (BCP). Table 2.1 also lists the IRP designations of the SWMUs and AOCs, identifies the party or parties responsible for their management, and categorizes the sites by their TNRCC corrective action status (i.e., PR, VSI, RFI, CMS, CMI/IRA/RA, LTM, Request for Closure/Closure Pending, NFA/Closure). Since the TNRCC has agreed that SWMUs and AOCs for which proof of attainment of a RRS was not submitted prior to the TRRP rule effective date of May 1, 2000 will be grandfathered and closed under the old RRS rule, the corresponding TRPP closure process status (RFI/APA, Response Action, Submittal of Report) is not provided.

It should be noted that because of the 2002 MOU between AFCEE and AFBCA, which specifically transferred management responsibility of six AFBCA cleanup sites (BRAC funded sites) to AFCEE (please see Table 1.4), sites, which were listed as AFBCA/BRAC sites in previous former Carswell AFB documents, are now listed as AFCEE/DERA sites. The locations

of the SWMUs and AOCs are presented on Figures 2.1 and 2.2. It should also be noted that although SWMU 22 is a closed BRAC site, for the purposes of the Air Force Restoration Information Management System (AFRIMS), it is also the site associated with Basewide Long Term Monitoring (Appendix B), which includes the monitoring of the existing Pump and Treat System. A remedial action operation, in the form of lawn maintenance will be carried out at the site in 2003. For the purposes of AFRIMS, SWMU 24, which was partially closed for soils only and is currently undergoing a groundwater investigation, is also associated with the construction and operation of the nearby PRB, an innovative remediation technology demonstration site. Similarly, all future post-investigation corrective action activities in the southern lobe of the base-wide TCE plume are associated with SWMU 24 (Appendix B).

Table 2.2 shows that 41 SWMUs and 12 AOCs are closed, 8 SWMUs, 5 AOCs and 1 undesignated site (Building 1655 OWS) are awaiting closure, 3 SWMUs are in the CMS phase of the corrective action process, and 8 SWMUs, 1 undesignated site (PRB), and 1 AOC are undergoing interim remedial action. The table also shows that basewide LTM monitoring activities are being carried out, and lists 8 SWMUs and 2 AOCs which are in the investigation phase of the corrective action process.

#### **2.1.2.1 Restoration Cost Data**

Currently AFCEE has estimated U.S. Air Force future (2002 to completion in 2025) funding requirements for restoration activities at NAS Fort Worth JRB to be \$18,162,000. It should be noted that this includes a projection of \$1,300,000 between 2002 and 2014 for project management and \$185,000 for RAB support between 2002 and 2010. The remaining planned expenditures are required to execute additional removal and or remedial response actions in the form of focused investigations, source excavation and treatment, groundwater treatment, long-term monitoring, and the enforcement of institutional controls through the year 2025. The obligated amount for the year 2001 is \$3,248,000, which includes \$374,000 for project management, and \$23,074 for RAB support. Current and future costs associated with restoration efforts at NAS Fort Worth JRB are presented in Appendix B.

Prior to fiscal year (FY) 2002, the U.S. Air Force had incurred an estimated expenditure of \$17,026,000 for cleanup efforts at the former Carswell AFB (UNITEC, 2001c). Partially, as a result of these expenditures, the Air Force has been able to close 41 SWMUs and 12 AOCs out of a total of 68 SWMUs and 20 AOCs identified so far at the former Carswell AFB. Twenty-nine of the 41 SWMUs and eight of the 12 AOCs were closed using ERA funds. The spent funds have also resulted in the request for closure of 8 SWMUs, 1 undesignated site (Building 1655 OWS), and 5 AOCs. Four of the 5 AOCs and all 8 SWMUs awaiting closure are DERA sites. The Air Force is also conducting basewide long-term monitoring activities, and undertaking remedial actions, CMSs, or investigations at 19 SWMUs, 1 undesignated site (PRB) and 3 AOCs. Only one SWMU (SWMU 66 – Sanitary Sewer System) of the 19 SWMUs, 1 undesignated site, and 3 AOCs is considered a BRAC site. The only other original BRAC site of the 19 SWMUs, 1 undesignated site, and 3 AOCs - SWMU 24 has been transferred to AFCEE for management under DERA per the 2002 AFCEE/AFBCA memo and is currently subject to a groundwater investigation using DERA funds.

**Table 2.1**  
**Description and Corrective Action Status of SWMUs and AOCs**  
**NAS Fort Worth JRB**

SWMU/ AOC	Name	IRP Designation	Management Responsibility	Corrective Action Inception Date	Current Status <sup>+</sup>	Closure Date	Category <sup>&amp;</sup>	Comments
SWMU 1	Pathological Waste Incinerator		BRAC	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 2	Pathological Waste Storage Shed		BRAC	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 3	Metal Cans		BRAC	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 4	Facility Dumpsters		BRAC	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 5	Bldg 1628 WAA	SS-002	ERA	April 22, 1994*	RFI	N/A	3	Current Status information obtained from U S Air Force, 2002 and UNITEC, 2001b
SWMU 6	Bldg 1628 Washrack and Drain	SD-016	ERA	April 22, 1994*	RFI	N/A	3	Current Status information obtained from U S Air Force, 2002 and UNITEC, 2001b
SWMU 7	Bldg. 1628 OWS	SD-000	ERA	April 22, 1994*	Closed under RCRA	Jul 2000	1	NFA per U.S. Air Force, 2001a
SWMU 8	Bldg. 1628 Sludge Collection Tank	SD-014	ERA	April 22, 1994*	Closed under RCRA	Jul 2000	1	NFA per U.S. Air Force, 2001a
SWMU 9	Bldg. 1628 Work Station WAA		ERA	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 10	Bldg. 1617 Work Station WAA		ERA	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 11	Bldg. 1617 WAA	SS-003	ERA	March 2, 1995**	Closed under RCRA	Jun 2001	1	NFA per TNRCC letter dated June 18, 2001
SWMU 12	Bldg 1619 WAA	SS-004	ERA	April 22, 1994*	IRA	N/A	5	Current Status information obtained from U S Air Force, 2002 and UNITEC, 2001b
SWMU 13	Bldg. 1710 WAA	SS-005	ERA	ND	Closed under RCRA	Apr 1999	1	NFA per TNRCC letter dated April 28, 1999.
SWMU 14	Bldg. 1060 Bead Blaster Collection Tray		ERA	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 15	Bldg. 1060 Paint Booth Vault		ERA	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 16	Bldg. 1060 WAA	SS-006	ERA	February 7, 1991***	Closed under RCRA	Nov 2000	1	NFA per TNRCC letter dated November 20, 2000
SWMU 17	Landfill 7	LF-005	ERA	March 2, 1995**	IRA	N/A	4	Current Status information obtained from HGL, 2002
SWMU 18 <sup>++</sup>	Fire Training Area 1	FT-08	ERA	February 7, 1991***	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995

715

68

**Table 2.1 (continued)**  
**Description and Corrective Action Status of SWMUs and AOCs**  
**NAS Fort Worth JRB**

SWMU/ AOC	Name	IRP Designation	Management Responsibility	Corrective Action Inception Date	Current Status <sup>+</sup>	Closure Date	Category <sup>&amp;</sup>	Comments
SWMU 19	Fire Training Area 2	FT-001	ERA	February 7, 1991***	IRA	N/A	5	Current Status information is based on U.S. Air Force 2001d
SWMU 20	Waste Fuel Storage Tank	FT-001	ERA	February 7, 1991***	IRA	N/A	5	Current Status information is based on U.S. Air Force 2001d
SWMU 21	Waste Oil Tank	FT-001	ERA	February 7, 1991***	IRA	N/A	5	Current Status information is based on U.S. Air Force 2001d
SWMU 22	Landfill 4	LF-009/LF-04	BRAC	February 7, 1991***	Closed under RRS No. 2	Mar 2001	1	NFA per TNRCC letter dated March 5, 2001
					RAO and Basewide LTM	N/A	N/A	Current Status information obtained from UNITEC, 2001b
								Although SWMU 22 is a closed BRAC site, the adjacent pump and treat groundwater remediation system is used to treat contaminated groundwater emanating from AFP 4. As a result, SWMU 22 is associated with Basewide Long Term Monitoring in AFRIMS from 2003 till 2025. A remedial action operation, in the form of lawn maintenance of the landfill cap will also be carried out at the site in 2003.
SWMU 23**	Landfill 5	LF-05	ERA	February 7, 1991***	Closed under RRS No. 2	Mar 2001	1	NFA per TNRCC letter dated March 5, 2001
SWMU 24**	Waste Burial Area/ Waste Pile 7	WP-07	ERA	February 7, 1991***	Soils closed under RRS No. 2 Groundwater RI	Mar 2001 N/A	1 3	NFA per TNRCC letter dated March 5, 2001 Current Status information obtained from UNITEC, 2001b
					Permeable Reactive Barrier (PRB) IRA-C	N/A	N/A	The construction and operation of the PRB is associated with the Waste Pile 7 Groundwater RI. The construction of the PRB is expected to be completed in 2001. It will be operated from 2002 till 2025.
SWMU 25**	Landfill 8	LF-006/LF-08	ERA	April 22, 1994*	Closed under RRS No. 2	Mar 2001	1	NFA per TNRCC letter dated March 5, 2001
SWMU 26	Landfill 3	LF-003	ERA	April 22, 1994*	Closed under RRS No. 2	Dec 2001	1	NFA per TNRCC letter dated December 28, 2001

**Table 2.1 (continued)**  
**Description and Corrective Action Status of SWMUs and AOCs**  
**NAS Fort Worth JRB**

SWMU/ AOC	Name	IRP Designation	Management Responsibility	Corrective Action Inception Date	Current Status <sup>+</sup>	Closure Date	Category <sup>*</sup>	Comments
SWMU 27	Landfill 10	LF-008	ERA	April 22, 1994*	Closed under RCRA	Apr 2000	1	NFA per TNRCC letter dated April 26, 2000
					Project Closeout - Well Abandonment	N/A	N/A	Information obtained from UNITEC, 2001b. Although the site is closed, the base-wide well abandonment project has been associated with SWMU 27 in AFRIMS
SWMU 28	Landfill 1	LF-001	ERA	February 7, 1991***	IRA	N/A	5	Current Status information obtained from U S Air Force, 2002
SWMU 29	Landfill 2	LF-002	ERA	April 22, 1994*	IRA	N/A	5	Current Status information obtained from U S Air Force, 2002
SWMU 30	Landfill 9	LF-007	ERA	April 22, 1994*	IRA	N/A	5	Current Status information obtained from U S Air Force, 2002 and UNITEC, 2001b
SWMU 31	Bldg 1050 WAA	SS-007	ERA	April 22, 1994*	IRA	N/A	5	Current Status information obtained from U S Air Force, 2002 and UNITEC, 2001b
SWMU 32	Bldg. 1410 WAA	SS-008	ERA	February 7, 1991***	Closed under RCRA	Jun 2001	1	NFA per TNRCC letter dated June 18, 2001
SWMU 33	Bldg. 1420 WAA	SS-009	ERA	April 22, 1994*	Closed under RCRA	Nov 2000	1	NFA per TNRCC letter dated November 20, 2000
SWMU 34	Bldg. 1194 WAA	SS-010	ERA	March 2, 1995**	Closed under RCRA	Nov 2000	1	NFA per TNRCC letter dated November 20, 2000
SWMU 35	Bldg 1194 Vehicle Refueling Shop OWS System	SD-002	ERA	February 7, 1991***	Closure Pending	N/A	2	Current Status information obtained from U S Air Force, 2002
SWMU 36	Bldg. 1191 WAA	SS-011	ERA	February 7, 1991***	Closed under RCRA	June 2001	1	NFA per TNRCC letter dated June 18, 2001
SWMU 37	Bldg 1191 Vehicle Maintenance Shop OWS	SD-003	ERA	April 22, 1994*	Closure Pending	N/A	2	Current Status information obtained from U S Air Force, 2002
SWMU 38	Bldg 1269 PCB Transformer Building		ERA	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 39	Bldg. 1643 WAA	SS-012	ERA	March 2, 1995**	Closed under RCRA	Nov 2000	1	NFA per TNRCC letter dated November 20, 2000
SWMU 40	Bldg 1643 OWS System	SD-004	ERA	March 2, 1995**	Closure Pending	N/A	2	Current Status information obtained from U S Air Force, 2002

715

70



**Table 2.1 (continued)**  
**Description and Corrective Action Status of SWMUs and AOCs**  
**NAS Fort Worth JRB**

SWMU/ AOC	Name	IRP Designation	Management Responsibility	Corrective Action Inception Date	Current Status <sup>+</sup>	Closure Date	Category <sup>#</sup>	Comments
SWMU 41	Bldg 1414 OWS System, Field Maintenance Squadron, Aerospace Ground Equipment	SD-005	ERA	April 22, 1994*	Closure Pending	N/A	2	Current Status information obtained from U S Air Force, 2002
SWMU 42	Bldg. 1414 WAA	SS-013	ERA	April 22, 1994*	Closed under RCRA	Nov 2000	1	NFA per TNRCC letter dated November 20, 2000
SWMU 43	Bldg. 1414 NDI WAA		ERA	April 22, 1994*	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 44	Bldg 1027 OWS at the Aircraft Washing Hangar	SD-006	ERA	March 2, 1995**	Closure Pending	N/A	2	Current Status information obtained from U S Air Force, 2002
SWMU 45	Bldg. 1027 Waste Oil Tank Vault at the Aircraft Washing Hangar	SD-015	ERA	November 30, 1994**	Closed under RCRA	Mar 2001	1	NFA per TNRCC letter dated March 9, 2001
SWMU 46	Bldg. 1027 WAA		ERA	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 47	Bldg 1015 Jet Engine Test Cell OWS		ERA	November 30, 1994**	Closure Pending	N/A	2	Current Status information obtained from U S Air Force, 2002
SWMU 48	Bldg. 1048 Fuel System Floor Drains		ERA	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 49	Aircraft Washing Area 1	SD-017	ERA	March 2, 1995**	RFI	N/A	3	Current Status information obtained from U S Air Force, 2002
SWMU 50	Aircraft Washing Area 2	SD-018	ERA	March 2, 1995**	RFI	N/A	3	Current Status information obtained from UNITEC, 2001b
SWMU 51	Bldg. 1190 Central Waste Holding	SS-014	ERA	April 22, 1994*	Closed under RCRA	Jun 2001	1	NFA per TNRCC letter dated June 18, 2001
SWMU 52	Bldg 1190 OWS	SD-008	ERA	April 22, 1994*	Closure Pending	N/A	2	Current Status information obtained from U S Air Force, 2002
SWMU 53	Storm Water Drainage System	SD-019	ERA	February 7, 1991***	Closed	Jul 2001	1	NFA per TNRCC letter dated July 18, 2001
SWMU 54	Storm Water Interceptors	SD-020	ERA	April 22, 1994*	RFI	N/A	3	Current Status information obtained from U S Air Force, 2001c and UNITEC, 2001b
SWMU 55	East Gate OWS	SD-009	ERA	April 22, 1994*	RFI	N/A	3	Current Status information obtained from U S Air Force, 2001c and UNITEC, 2001b

**Table 2.1 (continued)**  
**Description and Corrective Action Status of SWMUs and AOCs**  
**NAS Fort Worth JRB**

SWMU/ AOC	Name	IRP Designation	Management Responsibility	Corrective Action Inception Date	Current Status <sup>+</sup>	Closure Date	Category <sup>&amp;</sup>	Comments
SWMU 56	Bldg. 1405 WAA		ERA	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 57	Bldg. 1432/1434 WAA		ERA	ND (EPA & TWC recommended NFA after January 16-18, 1990 VSI)****	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 58	Pesticide Rinse Area	WP-11	BRAC	March 2, 1995**	Closed under RCRA	Aug 1999	1	NFA per TNRCC letter dated August 31, 1999
SWMU 59	Bldg. 8503 WSA WAA	OT-15	BRAC	April 22, 1994*	Closed under RRS No. 2	Feb 2001	1	NFA per TNRCC letter dated February 5, 2001
SWMU 60	Bldg. 8503 Radioactive Waste Burial Site	OT-15	BRAC	March 2, 1995**	Closed under RRS No. 2	Feb 2001	1	NFA per TNRCC letter dated February 5, 2001
SWMU 61	Bldg. 1320 Power Production Maintenance Facility WAA		ERA	ND (EPA & TWC recommended NFA after VSI)****	IRA	N/A	5	Current Status information obtained from U S Air Force, 2001c and UNITEC, 2001b
SWMU 62	Landfill 6	LF-004	ERA	February 7, 1991***	IRA	N/A	5	Current Status information obtained from U S Air Force, 2002 and UNITEC, 2001b
SWMU 63	Entomology Dry Well	OT-12	ERA	February 7, 1991***	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 64	French Underdrain System	ST-003	ERA	February 7, 1991***	Closure Pending	N/A	2	RA was completed in 2001 A CMI Report/Request for Closure is currently being prepared Current Status information obtained from HGL 2002
SWMU 65	WSA Disposal Site	OT-15	BRAC	February 7, 1991***	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995
SWMU 66	Sanitary Sewer System	WP-001	BRAC	March 2, 1995**	RFI	N/A	3	Current Status information obtained from U S Air Force, 2002
SWMU 67	Bldg. 1340 OWS	ST-003	ERA	February 7, 1991***	Closed under RCRA	ND	1	NFA per U.S. Air Force, 2002
SWMU 68	POL Tank Farm	ST-001	ERA	February 7, 1991***	Closed/PST Plan A	Nov 2001	2	Current Status information obtained from U S Air Force, 2002
AOC 1	Bldg. 1518 Service Station	ST-004	ERA	ND	IRA	N/A	5	Current Status information obtained from U S Air Force, 2001c and UNITEC, 2001b
AOC 2	Airfield Groundwater Plume	WP-002	ERA	ND	RFI	N/A	3	Current Status information obtained from U S Air Force, 2002
AOC 3	Waste Oil Dump	DP-17	ERA	ND	Closed under RCRA	ND <sup>#</sup>	1	NFA per TNRCC letter dated March 2, 1995

**Table 2.1 (continued)**  
**Description and Corrective Action Status of SWMUs and AOCs**  
**NAS Fort Worth JRB**

SWMU/ AOC	Name	IRP Designation	Management Responsibility	Corrective Action Inception Date	Current Status <sup>+</sup>	Closure Date	Category <sup>*</sup>	Comments
AOC 4	Fuel Hydrant System	ST-005	ERA	ND	Closed/PST Plan A	Oct 2001	1	Current Status information obtained from U. S. Air Force, 2002 and UNITEC, 2001b
AOC 5 <sup>++</sup>	Grounds Maintenance Yard		ERA	ND	Closed under RRS No. 2	Dec 2000	1	NFA per TNRCC letter dated December 19, 2000
AOC 6	RV Storage Area	SS-001	ERA	ND	Closed under RCRA	Nov 2000	1	NFA per TNRCC letter dated November 20, 2000
AOC 7	Former Base Refueling Area	ST-002	ERA	ND	Closed	ND	1	Current Status information obtained from U. S. Air Force, 2002
AOC 8	SW Aerospace Museum		BRAC	ND	Closure Pending	N/A	5	Current Status information obtained from U. S. Air Force, 2002
AOC 9	Golf Course Maintenance Yard		BRAC	ND	Closed under RRS No. 1	Aug 1999	1	NFA per TNRCC letter dated August 31, 1999
AOC 10	Bldg 1064 OWS	SD-010	ERA	ND	Closure Pending	N/A	2	Current Status information obtained from U. S. Air Force, 2002
AOC 11	Bldg 1060 OWS	SD-011	ERA	ND	Closure Pending	N/A	2	Current Status information obtained from U. S. Air Force, 2002
AOC 12	Bldg 4210 OWS	SD-012	ERA	ND	Closure Pending	N/A	2	Current Status information obtained from U. S. Air Force, 2002
AOC 13	Bldg. 1145 OWS	SD-013	ERA	ND	Closed under RRS No. 2	Oct 2001	1	NFA per TNRCC letter dated October 4, 2001
AOC 14 <sup>++</sup>	Unnamed Stream		ERA	ND	Closed under RRS No. 1	Jan 2000	1	NFA per TNRCC letter dated January 31, 2001
AOC 15	Bldg. 1190 Storage Shed	SS-016	ERA	ND	Closed under RCRA	Nov 2000	1	NFA per TNRCC letter dated November 20, 2000
AOC 16	Family Camp		BRAC	ND	Closed under RCRA	Jun 1999	1	NFA per TNRCC letter dated June 23, 1999
AOC 17	Landfill 11	AOC 017	ERA	ND	Closed under RCRA	Mar 2001	1	NFA per TNRCC letter dated March 7, 2001
AOC 18	Suspected Fire Training Area A	AOC 018	ERA	ND	Closed under RCRA	Mar 2001	1	NFA per TNRCC letter dated March 7, 2001
AOC 19	Suspected Fire Training Area B		ERA	ND	Closure Pending	N/A	2	IRA was completed in 2001 Closure report is currently being prepared Current Status information obtained from UNITEC, 2002
AOC 20	Paleo Channel		ERA	ND	RFI	N/A	3	Current Status information from UNITEC, 2001b All post- investigation corrective actions are associated with SWMU 24

**Table 2.1 (continued)**  
**Description and Corrective Action Status of SWMUs and AOCs**  
**NAS Fort Worth JRB**

SWMU/ AOC	Name	IRP Designation	Management Responsibility	Corrective Action Inception Date	Current Status <sup>+</sup>	Closure Date	Category <sup>&amp;</sup>	Comments
N/A	Building 1655 OWS	N/A	ERA	ND	Closure Pending	N/A	2	Current Status information obtained from UNITEC, 2002
N/A	Permeable Reactive Barrier	N/A	ERA	ND	IRA	N/A	5	Current Status information obtained from UNITEC, 2001b (See comments for SWMU 24)

**Notes:** Closed sites are shown in rows with bold lettering

\* TNRCC Letter dated April 22, 1994 to Mr Ohlen Long, Site Manager AFBDA

\*\* TNRCC Letter dated March 2, 1995 to Mr Ohlen Long, Site Manager AFBDA

\*\*\* Carswell AFB RCRA Permit dated February 7, 1991

\*\*\*\* Texas Water Commission January 23, 1990 Memo, documenting results and recommendations of EPA/TWC's January 16 -18, 1990 Visual Site Inspection (VSI) of Carswell AFB

& Category Index

1 - Closed Sites      2 -- Sites Awaiting Closure      3 - Sites Undergoing Investigation/  
 4. - CMS      5 - Response Action/CMI/IRA/LTM/Project Closeout Sites

+ Current Status obtained from AFCEE and AFBDA estimated schedules, Carswell AFB Administrative Records, and other sources cited in the comments section of the table

++ BRAC Sites being transferred to AFCEE for management under DERA per 2002 U.S. Air Force MOU

# Although, the closure dates are not known for these SWMUs and AOCs, a closure date of March 2, 1995 may be assumed based on wording in TNRCC letter dated March 2, 1995\*\* to Mr. Ohlen Long, Site Manager, AFBDA

AOC Area of Concern      OWS Oil/Water Separator

AFP 4 Air Force Plant 4      PCB Polychlorinated Biphenyl

AFRIMS Air Force Restoration Information Management System      POL Petroleum/Oil/Lubricant

APA Affected Property Assessment      RA Remedial Action/Response Action

BRAC Base Realignment and Closure      RCRA Resource Conservation Recovery Act

CMI Corrective Measure Implementation      RD Remedial Design

CMS Corrective Measure Studies      RFI RCRA Facility Investigation

ERA Environmental Restoration Account      RRS Risk Reduction Standard

IRP Installation Restoration Program      SWMU Solid Waste Management Unit

LTM Long-Term Monitoring      TCE Trichloroethylene

LTO Long-Term Observation      TNRCC Texas Natural Resource Conservation Commission

N/A Not Applicable      VSI Visual Site Inspection

ND No Data on File      WAA Waste Accumulation Area

NFA No Further Action      WSA Weapons Storage Area

NDI Non-Destructive Inspection

Sources 1997 CPA, Table A, 1997 CRP, pp 14-16, U.S. Air Force, 2001a (RCRA Permit Application, Feb 2001), U.S. Air Force, 2002 (Draft MOU Between AFCEE and AFBDA, Jan 2002), U.S. Air Force, 2001c (NAS Fort Worth IRP Update, Aug 2001), U.S. Air Force, 2001d (AFRIMS Project List), UNITEC, 2001b (Phone conversation with AFCEE Contractor on Oct 16 - 18, 2001), UNITEC 2002 (Phone conversation with AFCEE Contractor on Jan 17, 2002), HGL 2002 (E-mail from HGL on Jan 7, 2002)

**Table 2.2**  
**Categorical Listing of SWMUs and AOCs by Corrective Action Status**  
**NAS Fort Worth JRB**

Corrective Action Status	List of Sites		Total Number of Sites in Category
	SWMU/AOC (IRP Designation)	Name	
RCRA Facility Assessment (RFA)	None	N/A	0 SWMUs 0 AOCs
RCRA Facility Investigation (RFI)	SWMU 5 (SS-002) SWMU 6 (SD-016) SWMU 24 (WP-07) <sup>+++&amp;</sup> SWMU 49 (SD-017) SWMU 50 (SD-018) SWMU 54 (SD-020) SWMU 55 (SD-009) SWMU 66 (WP-001)* AOC 2 (WP-002) AOC 20 (AOC 020) <sup>+++</sup>	Bldg 1628 WAA Bldg 1628 Washrack and Drain Waste Burial Area/Waste Pile 7 Aircraft Washing Area 1 Aircraft Washing Area 2 Storm Water Interceptors East Gate OWS Sanitary Sewer System Airfield Groundwater Plume Paleo Channel	8 SWMUs 2 AOCs
Interim Remedial Action (IRA)	SWMU 12(SS-004) SWMU 17 (LF-005) SWMU 28 (LF-001) SWMU 29 (LF-002) SWMU 30 (LF-007) SWMU 31 (SS-007) SWMU 61 (None) SWMU 62 (LF-004) AOC 1 (ST-004) Permeable Reactive Barrier (PRB) <sup>+++ #</sup>	Bldg 1619 WAA Landfill 7 Landfill 2 Landfill 9 Bldg 1050 WAA Bldg 1320 Power Production Maint Facility WAA Landfill 6 Bldg 1518 Service Station Permeable Reactive Barrier	8 SWMUs 1 AOC 1 Undesignated Site (Permeable Reactive Barrier)
Corrective Measure Study (CMS)**	SWMU 19 (FT-001) SWMU 20 (FT-001) SWMU 21 (FT-001)	Fire Training Area 2 Waste Fuel Storage Tank Waste Oil Tank	3 SWMUs
Corrective Measure Implementation (CMI) Remedial Action (RA)	None	None	0 SWMU
Long Term Monitoring (LTM) <sup>+</sup>	Basewide Long Term Monitoring <sup>++</sup>	Basewide Long Term Monitoring	Basewide Long Term Monitoring

**Table 2.2 (continued)**  
**Categorical Listing of SWMUs and AOCs by Corrective Action Status**  
**NAS Fort Worth JRB**

Corrective Action Status	List of Sites		Total Number of Sites in Category
	SWMU/AOC (IRP Designation)	Name	
Closure Pending	SWMU 35 (SD-002) SWMU 37 (SD-003) SWMU 40 (SD-004) SWMU 41 (SD-005) SWMU 44 (SD-006) SWMU 47 (None) SWMU 52 (SD-008) SWMU 64 (ST-003) AOC 8 (None)* AOC 10 (SD-010) AOC 11 (SD-011) AOC 12 (SD-012) AOC 19 Building 1655 OWS <sup>#</sup>	Bldg 1194 Vehicle Refueling Shop OWS System Bldg 1191 Maint Shop OWS Bldg 1643 OWS System Bldg 1414 OWS System, Field Maintenance Squadron, AGE Bldg 1027 OWS at the Aircraft Washing Hangar Bldg 1015 Jet Engine Test Cell OWS Bldg 1190 OWS French Underdrain System SW Aerospace Museum Bldg 1064 OWS Bldg 1060 OWS Bldg 4210 OWS Suspected Fire Training Area B Bldg 1655 OWS	8 SWMUs 5 AOCs 1 Undesignated Site (Bldg 1655 OWS)
Site Closure	SWMU 1 (None)* SWMU 2 (None)* SWMU 3 (None)* SWMU 4 (None)* SWMU 7 (SD-000) SWMU 8 (SD-014) SWMU 9 (None) SWMU 10 (None) SWMU 11 (SS-003) SWMU 13 (SS-005) SWMU 14 (None) SWMU 15 (None) SWMU 16 (SS-006) SWMU 18 (FT-008) <sup>&amp;</sup> SWMU 22 (LF-009) <sup>*++</sup> SWMU 23 (LF-05) <sup>&amp;</sup> SWMU 25 (LF-006) <sup>&amp;</sup> SWMU 26 (LF-003) SWMU 27 (LF-008) SWMU 32 (SS-008) SWMU 33 (SS-009) SWMU 34 (SS-010) SWMU 36 (SS-011) SWMU 38 (None) SWMU 39 (SS-012) SWMU 42 (SS-013) SWMU 43 (None)	Pathological Waste Incinerator Pathological Waste Storage Shed Metal Cans Facility Dumpsters Bldg 1628 OWS Bldg 1628 Sludge Collection Tank Bldg 1628 Work Station WAA Bldg 1617 Work Station WAA Bldg 1617 WAA Bldg 1710 WAA Bldg 1060 Bead Blaster Collection Tray Bldg 1060 Paint Booth Vault Bldg 1060 WAA Fire Training Area 1 Landfill 4 Landfill 5 Landfill 8 Landfill 3 Landfill 10 Bldg 1410 WAA Bldg 1420 WAA Bldg 1194 WAA Bldg 1191 WAA Bldg 1269 PCB Transformer Building Bldg 1643 WAA Bldg 1414 WAA Bldg 1414 Non Destructive Inspection WAA	41 SWMUs 12 AOCs

**Table 2.2 (continued)**  
**Categorical Listing of SWMUs and AOCs by Corrective Action Status**  
**NAS Fort Worth JRB**

Corrective Action Status	List of Sites		Total Number of Sites in Category
	SWMU/AOC (IRP Designation)	Name	
Site Closure	SWMU 45 (SD-015)	Bldg 1027 Waste Oil Tank Vault at the Aircraft Washing Hangar	
	SWMU 46 (None)	Bldg 1027 WAA	
	SWMU 48 (None)	Bldg 1048 Fuel System Floor Drains	
	SWMU 51 (SS-014)	Bldg 1190 Central Waste Holding	
	SWMU 53 (SD-019)	Storm Water Drainage System	
	SWMU 56 (None)	Bldg 1405 WAA	
	SWMU 57 (None)	Bldg 1432/1434 WAA	
	SWMU 58 (WP-11)*	Pesticide Rinse Area	
	SWMU 59 (OT-15)*	Bldg 8503 WSA WAA	
	SWMU 60 (OT-15)*	Bldg 8503 Radioactive Waste Burial Site	
	SWMU 63 (OT-12)	Entomology Dry Well	
	SWMU 65 (OT-15)*	WSA Disposal Site	
	SWMU 67 (ST-003)	Bldg 1340 OWS	
	SWMU 68 (ST-001)	POL Tank Farm	
	AOC 3 (DP-17)	Waste Oil Dump	
	AOC 4 (ST-005)	Fuel Hydrant System	
	AOC 5 (None) &	Grounds Maintenance Yard	
	AOC 6 (SS-001)	RV Storage Area	
	AOC7 (ST-002)	Former Base Refueling Area	
	AOC 9 (None) *	Golf Course Maintenance Yard	
	AOC 13 (SD-013)	Bldg 1145 OWS	
	AOC 14 (None) &	Unnamed Stream	
	AOC 15 (SS-016)	Bldg 1190 Storage Shed	
	AOC 16 (None)*	Family Camp	
	AOC 17 (AOC 017)	Landfill 11	
	AOC 18 (AOC 018)	Suspected Fire Training Area A	

**Notes**

- \* BRAC Site
- \*\* These three sites were originally scheduled for corrective measures study per the FY2002 AFRIMS project schedule. However, currently an interim remedial action is ongoing to remove soil hot spots
- # Building 1655 and the PRB have no SWMU or AOC designation
- + Basewide Long Term Monitoring is associated with closed BRAC site SWMU 22 (Landfill 4)
- ++ Although SWMU 22 is a closed BRAC site, the adjacent pump and treat groundwater remediation system is used to treat contaminated groundwater emanating from AFP 4. As a result, SWMU 22 is associated with Basewide Long Term Monitoring in AFRIMS from 2003 till 2025. A remedial action operation, in the form of lawn maintenance of the landfill cap will also be carried out at the site in 2003
- +++ SWMU 24 soils were closed under RRS No. 2 in March 2001. The remedial investigation applies to the site's groundwater. The construction and operation of a permeable reactive barrier, and the post-investigation corrective action activities at AOC 20 are also associated with the Waste Pile 7 Groundwater RI. The construction of the PRB is expected to be complete in 2002. It will be operated from 2002 till 2025. Post-investigation corrective action activities at AOC 20 are projected to start in 2003 and end in 2012
- & BRAC Sites being transferred to AFCEE for management under DERA per 2002 U.S. Air Force MOU
- Bldg – Building  
 AGE – Aerospace Ground Equipment  
 Maint – Maintenance  
 WSA – Weapons Storage Area  
 WAA – Waste Accumulation Area  
 AOC – Area of Concern  
 OWS – Oil-Water Separator  
 SWMU – Solid Waste Management Unit  
 N/A – Not Applicable

**Figure 2.1**  
Former Carswell AFB SWMU/AOC Locations



**Figure 2.2**  
Off-Site Weapons Storage Area SWMU Locations

### 2.1.2.2 Soil and Groundwater Contamination Map

Figure 2.3 presents a graphical representation of the NAS Fort Worth contamination sites and plumes over a geographic map of the former Carswell AFB. A detailed description of the sites is provided in Table 1.4. Data from various groundwater-monitoring activities at the former Carswell AFB and AFP 4 indicate that the groundwater contamination at NAS Fort Worth JRB is separated into three major lobes, namely the northern, central and southern lobes.

The northern lobe, which is listed in the NAS Fort Worth JRB RCRA permit, has an IRP designation of AOC 2. The northern lobe is likely a result of TCE contamination emanating from AFP 4. No sources have been discovered on NAS Ft. Worth property.

The southern lobe is not listed in the RCRA permit and has no IRP designation. It has been surmised that the paleo channel, which is located within AOC 20, is presumably a preferential pathway for TCE migration in groundwater that has potentially contributed to the southern lobe of the base-wide TCE plume. The paleo channel is incised in the bedrock surface (Goodland/Walnut Formation), underlying the shallow Terrace alluvium aquifer. The principal former tributary valley of the ancestral Trinity River begins at Air Force Plant 4 (AFP 4) under building 181 and runs eastward under the Carswell flightline and a secondary paleo channel runs towards the Carswell Golf Course (realignment property).

Investigations are ongoing to affirm the nature and extent of TCE groundwater contamination and the contribution of AOC 20 and AOC 2 to the TCE contamination in the southern and northern lobe respectively of the basewide TCE groundwater plume. The investigations will also help determine the future work needed to contain and/or remediate the groundwater contamination in the basewide TCE plume.

An innovative remedial technology, a PRB, is being constructed to evaluate the effectiveness of the technology as an alternative treatment system for a section of the southern lobe of the TCE plume and potential groundwater contamination emanating from up-gradient sources. Construction of the 1000-foot PRB will begin in FY 2002. The PRB, which will be located down-gradient of SWMU 24, will begin at the northern edge of Landfill 4 (SWMU 22), and will run parallel to the NAS Fort Worth JRB property boundary. Construction of the PRB will be completed using FY 2001 funds and it is projected that it will be operated until FY 2025.

In addition to the ongoing investigations and remedial actions, the Air Force currently collects groundwater samples at basewide locations semiannually to monitor the status of the contaminant plumes, the effectiveness of remedial systems, and to provide information for establishing groundwater movement and contamination trends. This effort, which was initially a quarterly event and is referred to as the Basewide Groundwater Sampling and Analysis Program (GSAP), has been in place since April 1995 (U.S. Air Force, 2000). The current semiannual events occur in April and October of each year.

**Figure 2.3**  
Groundwater Contamination Map

## **2.2 COMMUNITY AND REGULATORY INVOLVEMENT STATUS**

This section describes the current status of community and regulatory agency involvement in decision-making under the IRP at NAS Fort Worth JRB. This section also presents various tools and forums which have been used in maintaining these stakeholder relationships.

### **2.2.1 Community Involvement Summary**

Community relations efforts that address restoration issues have two regulatory drivers, the environmental restoration process and the National Environmental Policy Act (NEPA) process. Community relations efforts to support environmental restoration efforts are ongoing, while NEPA community relations activities only occur when a NEPA document is prepared, such as when Carswell AFB was declared surplus. The status of both processes is summarized below.

The existing community relations plan, written in 1997 (Booz-Allen & Hamilton, Inc., 1997) to support the environmental restoration process, was updated in 2001 (Science Application International Corporation (SAIC), 2001). Community interviews indicated that NAS Fort Worth JRB has good relations with neighboring communities, and that there are mild concerns with possible contamination of the water supply in Lake Worth, environmental cleanup, base housing, air quality, and noise.

One important component of community relations efforts is the formation and maintenance of a RAB. The RAB for the NAS Fort Worth JRB, originally formed in 1991, was combined with the RAB for AFP 4 in 1996 to form a joint RAB. RAB membership includes community representatives as well as base staff and regulatory agency representatives (SAIC, 2001; UNITEC, 2001a). Other community relations and outreach tools that are used to maintain public awareness and foster participation in restoration-related decisions and activity include the following:

- coordination of community relations activities through one designated Air Force representative,
- holding of public meetings when remedial investigation/feasibility study (RI/FS) and engineering evaluation/cost analysis reports become available for public review,
- allowing public comment periods of 60 days when the preferred cleanup alternative has been published,
- maintenance of a mailing list which is used to notify the interested public of activities and events,
- release of information through fact sheets mailed to interested parties and public officials,
- release of information through press releases, public notices, and the RAB web page,

- maintenance of administrative records on-line and in the AFCEE/NAS Fort Worth JRB Program Management Office,
- maintenance of an information repository at the White Settlement Public Library and the Central Fort Worth Public Library,
- conducting semiannual facility tours, and open house activities to broaden community knowledge of and interest in RAB activities,
- promote community awareness of cleanup activities through educational outreach programs at local public schools,
- conduct additional community interviews and making revisions to the community relations plan on a biannual basis.
- participate in biannual open house activities to broaden community knowledge of and interest in RAB activities, and
- promote community awareness of cleanup activities through education outreach programs at local public schools.

As part of the NEPA process to support the disposal and reuse of the NAS Fort Worth JRB, the FEIS was prepared in 1994. Public comments were solicited through public meetings, public notices, and press releases. Comments generated through this process were addressed in the FEIS. No additional NEPA document is expected to be needed to support the restoration efforts (Booz-Allen & Hamilton, Inc., 1997, pp. 27-32).

### **2.2.2 Regulatory Involvement Status**

Core members of the BCT and RPM groups, both of which include representatives from the two major jurisdictional regulatory agencies, the U.S. EPA Region 6 and the TNRCC, meet regularly on a quarterly basis, and when required on other occasions. This forum is used to obtain regulator input on numerous topics, including:

- site characterizations and restoration objectives,
- data gaps and data quality objectives,
- prioritization of restoration activities,
- planning and assessment of removal actions,
- requirements for and status of decision and closure documents,

- status of the 1998 Defense-State MOA between the Air Force, the U S EPA and the TNRCC, and
- other issues of concern to the RPMs that arise in the course of completing each project

Regulators and environmental restoration personnel from the base have a good working relationship. Conflicts to date have been resolved through negotiation and compromise, including representation from upper management and base or MAJCOM leadership as necessary. Regulatory agencies will be offered an opportunity to review this MAP to assure that it is kept current as cleanup efforts continues at NAS Fort Worth JRB.

# TAB

*SECTION 30*

---

### **3.0 ENVIRONMENTAL PROGRAM SITE CLOSEOUT STRATEGY**

This chapter describes and summarizes the installation-wide environmental restoration program closeout strategy and associated compliance programs at the NAS Fort Worth JRB. It also describes the strategies for maintaining community involvement in the environmental restoration process. The base has had an active environmental restoration program since 1984

### **3.1 REQUIREMENTS SUMMARY FOR SITE CLOSEOUT**

#### **3.1.1 Planned and Ongoing Investigations**

Of the 68 SWMUs and 20 AOCs at the former Carswell AFB (please see Table 2.2), 8 SWMUs and 5 AOCs are awaiting closure, while 8 SWMUs and 2 AOCs are in the investigation phase of the corrective action process. Four of the 5 AOCs and all 8 SWMUs awaiting closure are DERA sites, while only one SWMU, of the 8 SWMUs and 2 AOCs in the investigation phase, is being investigated with BRAC funds. Another site awaiting closure, the Building 1655 OWS, which has no SWMU or AOC designation was investigated using ERA funds (please see project list for NAS Fort Worth JRB in Appendix B). Table 3.1 summarizes the environmental restoration strategy for these 23 designated sites and 1 undesignated site.

Site closeout is expected for the 8 SWMUs and 5 AOCs awaiting closure in 2002. The soils at SWMU 24, which is one of 8 SWMUs undergoing an investigation, were closed under RRS No. 2 in March 2001. The site is one of six being transferred to AFCEE for management under DERA per the October 2001 AFCEE/AFBCA Memo. ERA funds were obligated in FY 2001 for a groundwater remedial investigation.

Funds were obligated in FY 2001 for investigations at the two AOCs, AOC 20 and AOC 2, to affirm the nature and extent of TCE groundwater contamination and their contribution to the TCE contamination in the southern and northern lobe respectively of the basewide TCE groundwater plume. The investigations will also help determine the future work needed to contain and/or remediate the groundwater contamination in the basewide TCE plume. Funds have already been validated for a Phase III investigation of AOC 20 in FY 2002. In addition, a Focused Feasibility Study (FFS) for the southern lobe of the TCE groundwater plume is currently ongoing using AFBCA and AFP-4 funds. The objective of the FFS is to develop and evaluate remedial options that focus on facilitating the transfer of federal land located to the southeast of the current NSA Ft. Worth JRB property (i.e., land surrounding the Carswell Golf Course). As part of the FFS, a risk assessment was completed in order to develop risk based clean up levels for TCE contamination. The risk assessment is currently in regulatory review and the final FFS will be submitted in early 2002.

Additional funds for further investigation or remedial activities at the 8 SWMUs (including groundwater at SWMU 24) and 2 AOCs in the investigation phase will be programmed if the results of the RFI warrant additional action. It should be noted that in Appendix B, for the purposes of AFRIMS, all future post-investigation corrective action activities at AOC 20, which are projected to last until FY 2012, are associated with SWMU 24.



**Table 3.1**  
**Planned and Ongoing Investigations**

Total Sites (SWMUs, AOCs, Undesignated Sites)	SWMU/AOC (IRP Designation)	Name	Strategy
10	SWMU 5 (SS-002) SWMU 6 (SD-016) SWMU 24 (WP-07) +++& SWMU 49 (SD-017) SWMU 50 (SD-018) SWMU 54 (SD-020) SWMU 55 (SD-009) SWMU 66 (WP-001)* AOC 2 (WP-002) AOC 20 (AOC 020)	Bldg 1628 WAA Bldg 1628 Washrack and Drain Waste Burial Area/Waste Pile 7 Aircraft Washing Area 1 Aircraft Washing Area 2 Storm Water Interceptors East Gate OWS Sanitary Sewer System Airfield Groundwater Plume Paleo Channel	Investigations at SWMU 5 and SWMU 6 have been completed and the two sites have been recommended for closure. The closure documents will be submitted with that for 3 other WAAs - SWMUs 12, 31, and 61, which were investigated at the same time as these two sites but underwent an interim remedial action in 2001. An interim remedial action is expected to be conducted at SWMU 54 in 2002. Investigations requested by the TNRCC are in progress for the remaining sites.
14	SWMU 35 (SD-002)  SWMU 37 (SD-003) SWMU 40 (SD-004) SWMU 41 (SD-005)  SWMU 44 (SD-006)  SWMU 47 (None)  SWMU 52 (SD-008) SWMU 64 (ST-003) AOC 8 (None)* AOC 10 (SD-010) AOC 11 (SD-011) AOC 12 (SD-012) AOC 19 Building 1655 OWS#	Bldg 1194 Vehicle Refueling Shop OWS System Bldg 1191 Maint Shop OWS Bldg 1643 OWS System Bldg 1414 OWS System, Field Maintenance Squadron, AGE Bldg 1027 OWS at the Aircraft Washing Hangar Bldg 1015 Jet Engine Test Cell OWS  Bldg 1190 OWS French Underdrain System SW Aerospace Museum Bldg 1064 OWS Bldg 1060 OWS Bldg 4210 OWS Suspected Fire Training Area Bldg 1655 OWS	Investigation of the Building 1655 OWS the interim remedial action at AOC 19, and the remedial action at SWMU 64 were completed in 2001 and the requests for closure of the three sites will be submitted in 2002. The interim remedial action at AOC 19 involved the excavation and confirmation of the type of suspected geophysical anomalies in the area while the remedial action at SWMU 64 involved the excavation of the underdrain system. The closure documents for the remaining eleven sites were submitted in 2001. Unless the requests for closure of the 14 sites are denied, their closure is expected in 2002. Additional funds for further remedial activities will be programmed if regulatory review warrants additional action.

Notes:

- \* BRAC Site  
 # Building 1655 has no SWMU or AOC designation  
 +++ SWMU 24 soils were closed under RRS No. 2 in March 2001. The remedial investigation applies to the groundwater only. In the NAS Fort Worth Project List (AFRIMS), the construction and operation of a permeable reactive barrier (PRB) is also associated with the Waste Pile 7 Groundwater RI. The construction of the PRB is expected to be completed in 2002. It will be operated from 2002 till 2025.  
 & BRAC Site being transferred to AFCEE for management under DERA per October 2001 AFCEE/AFBCA MOU

AOC – Area of Concern  
 OWS – Oil-Water Separator

SWMU – Solid Waste Management Unit  
 WAA – Waste Accumulation Area

### **3.1.2 Planned and Ongoing Response/Removal and Interim Actions**

Eight SWMUs, 1 AOC and 1 undesignated site (PRB), all of which are DERA sites, are currently undergoing or have recently undergone some form of remedial/removal action, which are measures necessary to remove released hazardous substances from the environment and/or to control the threat of release. These measures are wide ranging and include excavating contaminated materials and installing contaminant migration controls. Another three sites (SWMUs 19, 20, and 21) were originally projected in the FY2002 AFRIMS schedule to be in the CMS phase of the corrective action process, where the options required for closure of a site are evaluated and a final remedy is chosen. However, it has been decided that an interim remedial action, which is currently ongoing, be carried out. Table 3 2 summarizes the NAS Fort Worth JRB's planned and ongoing response/removal and interim remedial actions.

The table lists the construction of the PRB as an ongoing remedial action. The installation of the PRB originated as a technology demonstration project. NAS Fort Worth JRB was chosen as the site to demonstrate the PRB technology. After the initiation of the PRB project, it was determined that the technology could be used as one of the alternatives for an ongoing FFS at NAS Fort Worth JRB, which led to cost sharing for remediation of the basewide TCE groundwater plume. Construction of the PRB is expected to be complete in FY 2002 and it is projected to operate until FY 2025. It is being constructed using AFCEE Environmental Restoration Technology (ERT), Environmental Restoration Division (ERD), AFBCA, and Aeronautical Systems Center (ASC) funds. The effectiveness of this innovative technology as an alternative treatment system for sections of the southern lobe of the basewide TCE groundwater plume will be evaluated through semi-annual monitoring efforts. It should be noted that in Appendix B, similarly to AOC 20, for the purposes of AFRIMS the construction and operation of the PRB is also associated with SWMU 24, since the PRB will be located downgradient of the site.

### **3.1.3. Long-Term Monitoring and Site Closeout**

The Air Force collects groundwater samples at basewide locations two times a year to monitor the status of the AOC 20 and AOC 2 contaminant plumes and to provide information for establishing basewide groundwater movement and contamination trends. This effort, referred to as the Basewide Groundwater Sampling and Analysis Program (GSAP) has been in place since April 1995 (U.S. Air Force 2000). The current semi-annual events occur in April and October of each year. The sampling results are also used to evaluate the effectiveness of groundwater remedial systems such as the pump and treat system located adjacent to SWMU 22 (Landfill 4), which is used to treat contaminated groundwater emanating from AFP 4. It should be noted that in Appendix B, well abandonment and maintenance are considered as long term monitoring operations. Also, for the purposes of AFRIMS, all long term monitoring activities are associated with SWMU 22, a closed BRAC site, which is being transferred by the AFBCA to AFCEE.

**Table 3.2**  
**Planned and Ongoing Response/Removal and Interim Actions**

Total Sites (SWMUs & AOCs)	SWMU/AOC (IRP Designation)	Name	Action/Purpose/Strategy
8	SWMU 12(SS-004) SWMU 17 (LF-005) SWMU 28 (LF-001) SWMU 29 (LF-002) SWMU 30 (LF-007) SWMU 31 (SS-007) SWMU 61 (None)  SWMU 62 (LF-004)	Bldg 1619 WAA Landfill 7 Landfill 1 Landfill 2 Landfill 9 Bldg 1050 WAA Bldg 1320 Power Production Maint Facility WAA Landfill 6	Interim remedial actions, to remove soil hot spots from these WAAs and landfills were completed in 2001. RFI reports will be prepared in 2002 and the sites will be evaluated for closure. Additional funds for further remedial activities will be programmed if results of the evaluation warrant additional action.
1	AOC 1 (ST-004)	Bldg 1518 Service Station	An interim remediation system (a pump and treat system) for groundwater is expected to be put in place in 2002. It is anticipated that the interim remediation system will be operated till 2012.
1	Permeable Reactive Barrier (PRB) +++#	Permeable Reactive Barrier	The construction of the PRB is expected to be completed in 2002. It will be operated from 2002 till 2025.
3	SWMU 19 (FT-001) SWMU 20 (FT-001) SWMU 21 (FT-001)	Fire Training Area 2 Waste Fuel Storage Tank Waste Oil Tank	Buried metallic debris is suspected to be buried at the former Fire Training Area. These three sites were originally scheduled for corrective measures study per the FY2002 AFRIMS project schedule. However, currently an interim remedial action is ongoing to remove soil hot spots. After the IRA, a RFI report will be prepared and the sites will be evaluated for closure. Funds have been programmed from FY2003 till FY2009 in case a full blown remedial action is warranted.

## Notes:

- # The PRB has no SWMU or AOC designation
- +++ In the NAS Fort Worth Project List (AFRIMS), the construction and operation of a permeable reactive barrier is also associated with SWMU 24 (Waste Pile 7) since the PRB will be located downgradient of the site
- & BRAC Site being transferred to AFCEE for management under DERA per October 2001 MOU

AOC – Area of Concern

OWS – Oil-Water Separator

SWMU – Solid Waste Management Unit

WAA – Waste Accumulation Area

### 3.2 SUMMARY OF FUNDING REQUIREMENTS

Funding for restoration activities at NAS Fort Worth JRB peaked in FY 2001 and is projected to continue to decline through FY 2015. The declining trend is projected to be reversed in FY2016, when repair and maintenance work is expected to be carried out at the PRB site. After FY 2016 the downward trend in funding is expected to resume through FY 2025. Beginning in FY 2006, the only funding currently programmed is for the management of restoration activities/RAB support, remedial operations and long term monitoring. This profile may change based on the outcome of the request for closure of 14 sites and ongoing and planned investigations of the 10 sites listed in Table 3.1.

The details on anticipated funding requirements for restoration activities through fiscal year 2025 at active sites are presented in Appendix B. The cost estimating assumptions used are as follows.

- site closure will be documented according to TNRCC's RRS No. 1 or No. 2. As explained in subsection 2.1.1.1, this is based on consultations with regulators who have agreed to grandfather all the SWMUs and AOCs which were not closed before the May 1, 2000 effective date of the new TRRP rule, thus allowing them to be closed under the old RRS rule (UNITEC 2001b, Hydrogeologic 2002),
- all WAAs are being investigated and remediated (if necessary) under one project by two contractors. For cost-estimating purposes, it was assumed that 25 percent of the WAAs will require remediation,
- tasks priced under RFIs include record review, work plan development, field sampling plan/sampling analysis plan preparation, quality assurance program plan/health and safety plan modification, data validation, data evaluation, and other miscellaneous tasks. Costs associated with sampling (e.g., geoprobe, geophysical, and initial groundwater sampling) and laboratory analytical costs also are included in this cost category,
- the design costs include costs associated with remedial design activities,
- the remedial action costs include costs associated with construction and construction-related activities (e.g., contracting mobilization) including, but not limited to, construction materials, transport and disposal fees, and borrow material for backfills. Remedial action costs also cover preparation of the remedial action plans, closure documentation for those sites where data was collected to support closure but no remedial action was undertaken, and for those sites that are NFA (U.S. Air Force, 1996b, pp. 3-17-3-18),
- For the purposes of AFRIMS, all future post-investigation corrective action activities at AOC 20, which are projected to last until FY 2012, are associated with SWMU 24,
- For the purposes of AFRIMS the construction and operation of the PRB is associated with SWMU 24,

- Well abandonment and maintenance are considered as long term monitoring operations, and,
- For the purposes of AFRIMS, all post-closure care activities are associated with SWMU 22 (Landfill 4), a closed BRAC site, which is being transferred by the AFBCA to AFCEE.

Figure 3.1 shows program funding by relative risk category. The current relative risk designations of the sites at NAS Fort Worth JRB are presented in Table 3.3 (Hydrogeologic 2000). The details on program funding by relative risk category for each site may be found in Appendix B.

Presently there are only two high-level risk sites (AOC 1, and SWMU 24). The current cleanup strategy, which meets Defense Planning Guidance (DPG) goals, is to clean up to a lower relative risk category, or have remedial systems in place for 50% of the identified high relative risk sites by the end of FY2002, 100% of the identified high relative risk sites by the end of FY2007 (within three years for new sites), 100% of the identified medium relative risk sites by the end of FY2011, and 100% of identified low risk sites by the end of FY2014 (Hydrogeologic 2000, U.S. Air Force, 2001d).

Funding by program phase is shown in Figure 3.2. It is projected that all remedial investigation/CMS activities at active sites will continue through FY 2004. The figure shows that remedial action operations, as well as long term monitoring activities is programmed to continue through FY 2025. The overall remaining cost for completing the program at NAS Fort Worth JRB is \$18,162,000. Requirements for remedial action operations and long term monitoring activities are being minimized through the use of innovative management practices. Details on the management strategy are provided in Section 3.3.

### **3.3. OPTIMIZATION APPROACH FOR SITE CLOSEOUT**

#### **3.3.1 Short-Term Objectives (FY2001-FY2007)**

The NAS Fort Worth JRB restoration program has the following short-term goals:

- To clean up all high relative risk sites to a lower relative risk level, or have remedial systems in place for 50% of the identified high relative risk sites by the end of FY 2002,
- Achieve site closure for a total of 49 SWMUs and 17 AOCs at the former Carswell AFB by the end of 2003,
- To clean up all high relative risk sites to lower relative risk level, or have remedial systems in place for 100% of the identified high relative risk sites by the end of FY 2007 (within three years for new sites),
- Maintain and strengthen community involvement, and
- Continue to develop partnerships with regulatory agencies.

**Table 3.3**  
**Relative Risk Designations for SWMUs and AOCs**

<b>SWMU/AOC</b>	<b>Site Description</b>	<b>Relative Risk</b>
SWMU 1*	Pathological Waste Incinerator	NR
SWMU 2*	Pathological Waste Storage Shed	NR
SWMU 3*	Metal Cans	NR
SWMU 4*	Facility Dumpsters	NR
SWMU 5	Bldg 1628 WAA	Low
SWMU 6	Bldg 1628 Wash Rack and Drain	Low
SWMU 7	Bldg 1628 OWS	NR
SWMU 8	Bldg 1628 Sludge Collection Tank	NR
SWMU 9	Bldg 1628 Work Station WAA	NR
SWMU 10	Bldg 1617 Work Station WAA	NR
SWMU 11	Bldg 1617 WAA	NR
SWMU 12	Bldg 1619 WAA	Low
SWMU 13	Bldg 1710 WAA	NR
SWMU 14	Bldg 1060 Bead Blaster Collection Tray	NR
SWMU 15	Bldg 1060 Paint Booth Vault	NR
SWMU 16	Bldg 1060 WAA	NR
SWMU 17	Landfill 7	Medium
SWMU 18 <sup>+</sup>	Fire Training Area 1	NR
SWMU 19	Fire Training Area 2	Low
SWMU 20	Waste Fuel Storage Tank	Low
SWMU 21	Waste Oil Tank	Low
SWMU 22*	Landfill 4	NR
SWMU 23 <sup>+</sup>	Landfill 5	NR
SWMU 24 <sup>+</sup>	Waste Burial Area	High
SWMU 25 <sup>+</sup>	Landfill 8	NR
SWMU 26	Landfill 3	NR
SWMU 27	Landfill 10	NR
SWMU 28	Landfill 1	Medium
SWMU 29	Landfill 2	Medium
SWMU 30	Landfill 9	Medium
SWMU 31	Bldg 1050 WAA	Low
SWMU 32	Bldg 1410 WAA	NR
SWMU 33	Bldg 1420 WAA	NR
SWMU 34	Bldg 1194 WAA	NR

**Table 3.3**  
**Relative Risk Designations for SWMUs and AOCs**

<b>SWMU/AOC</b>	<b>Site Description</b>	<b>Relative Risk</b>
SWMU 35	Bldg 1194 Vehicle Refueling Shop OWS System	Low
SWMU 36	Bldg 1191 WAA	NR
SWMU 37	Bldg 1191 Vehicle Maintenance Shop OWS	Low
SWMU 38	Bldg 1269 PCB Transformer Building	NR
SWMU 39	Bldg 1643 WAA	NR
SWMU 40	Bldg 1643 OWS	NR
SWMU 41	Bldg 1414 OWS System Field Maintenance Squadron AGE	Low
SWMU 42	Bldg 1414 WAA	NR
SWMU 43	Bldg 1414 NDI WAA	NR
SWMU 44	Bldg 1027 OWS System at the Aircraft Washing Hangar	Low
SWMU 45	Bldg 1027 Waste Oil Tank Vault at the Aircraft Washing Hangar	NR
SWMU 46	Bldg 1027 WAA	NR
SWMU 47	Bldg 1015 Jet Engine Test Cell OWS	Low
SWMU 48	Bldg 1048 Fuel System Floor Drains	NR
SWMU 49	Aircraft Washing Area No 1	Low
SWMU 50	Aircraft Washing Area No 2	Low
SWMU 51	Bldg 1190 Central Waste Holding Area	NR
SWMU 52	Bldg 1190 OWS System	Low
SWMU 53	Storm Water Drainage System	NR
SWMU 54	Storm Water Interceptors	Low
SWMU 55	East Gate OWS	Low
SWMU 56	Bldg 1405 WAA	NR
SWMU 57	Bldg 1432/1434 WAA	NR
SWMU 58*	Pesticide Rinse Area	NR
SWMU 59*	Bldg 8503 WSA WAA	NR
SWMU 60*	Bldg 8503 Radioactive Waste Burial Site	NR
SWMU 61	Bldg 1320 Power Production Maintenance Facility WAA	Low
SWMU 62	Landfill 6	Low
SWMU 63	Entomology Dry Well	NR
SWMU 64	French Underdrain System	NR
SWMU 65*	WSA Disposal Site	NR
SWMU 66*	Sanitary Sewer System	NR
SWMU 67	Bldg 1340 OWS	NR
SWMU 68	POL Tank Farm	NR
AOC 1	Bldg 1518 Service Station	High

**Table 3.3**  
**Relative Risk Designations for SWMUs and AOCs**

<b>SWMU/AOC</b>	<b>Site Description</b>	<b>Relative Risk</b>
AOC 2	Airfield Groundwater Plume	Medium
AOC 3	Waste Oil Dump	NR
AOC 4	Fuel Hydrant System	NR
AOC 5+	Grounds Maintenance Yard	NR
AOC 6	RV Parking Area	NR
AOC 7	Base Refueling Area	NR
AOC 8*	SW Aerospace Museum	NR
AOC 9*	Golf Course Maintenance Yard	NR
AOC 10	Bldg 1064 OWS	Low
AOC 11	Bldg 1060 OWS	Low
AOC 12	Bldg 4210 OWS	Low
AOC 13	Bldg 1145 OWS	NR
AOC 14+	Unnamed Stream	NR
AOC 15	Bldg 1190 Storage Shed	NR
AOC 16*	Family Camp	NR
AOC 17	Landfill 11	NR
AOC 18	Fire Training Area 03	NR
AOC 19	Fire Training Area 04	NR
AOC 20	Paleo Channel	NE
NA	Permeable Reactive Barrier	NE
NA	Building 1655 OWS	Low

## Notes.

\* BRAC Sites

+ BRAC Sites being transferred to AFCEE for management under DERA per October 2001 MOU

AGE Aerospace Ground Equipment

AOC Area of Concern

NA Not Applicable

NDI Non-Destructive Inspection

NE Not Evaluated

NR No Risk

OWS Oil/Water Separator

PCB Polychlorinated Biphenyl

POL Petroleum/Oil/Lubricant

SWMU Solid Waste Management Unit

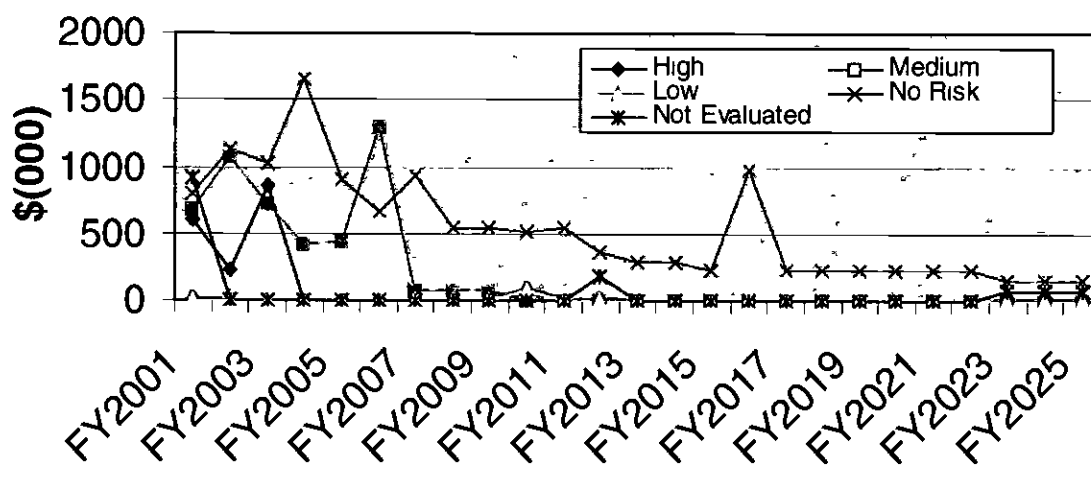
WAA Waste Accumulation Area

WSA Weapons Storage Area

Source: Hydrogeologic 2000, U.S. Air Force, 2001d



**Figure 3-1**  
**Funding By Relative Risk**

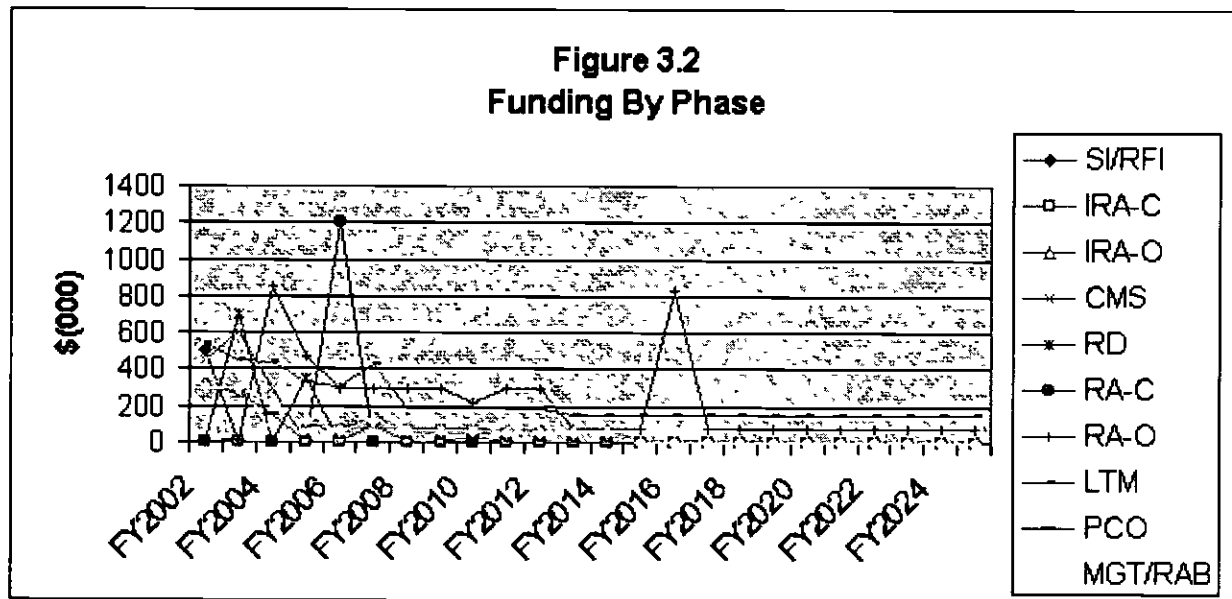


Relative Risk	High*	Medium*	Low*	No Risk*	Not Evaluated*
FY2001	600	680	0	800	920
FY2002	230	1075	0	1125	0
FY2003	850	725	0	1026	0
FY2004	0	425	0	1651	0
FY2005	0	434	0	906	0
FY2006	0	1288	0	662	0
FY2007	0	80	0	930	0
FY2008	0	80	0	545	0
FY2009	0	80	0	545	0
FY2010	0	0	80	505	0
FY2011	0	0	0	540	0
FY2012	0	0	0	360	180
FY2013	0	0	0	280	0
FY2014	0	0	0	280	0
FY2015	0	0	0	230	0
FY2016	0	0	0	980	0
FY2017	0	0	0	230	0
FY2018	0	0	0	230	0
FY2019	0	0	0	230	0
FY2020	0	0	0	230	0
FY2021	0	0	0	230	0
FY2022	0	0	0	230	0
FY2023	0	0	0	230	0
FY2024	0	0	0	230	0
FY2025	0	0	0	230	0

\* Amounts are in \$(000)

\*\* Source: U.S Air Force, 2001d (The estimates from Appendix B were used in preparing the table and figure)

**Figure 3.2**  
**Funding By Phase**



Phase	SI/RFI*	IRA-C*	IRA-O*	CMS*	RD*	RA-C*	RA-O*	LTM*	PCO*	MGT/RAB*	TOTAL*
FY2002	500	0	355	450	0	0	0	535	300	290	2430
FY2003	0	0	275	600	700		15	450	271	290	2601
FY2004	0	0	125	300	0	0	850	436	150	215	2076
FY2005	0	0	84	0	350	0	466	325	0	115	1340
FY2006	0	0	88	0	0	1200	292	305	0	65	1950
FY2007	0	0	80	0	0	0	290	425	100	115	1010
FY2008	0	0	80	0	0	0	290	190	0	65	625
FY2009	0	0	80	0	0	0	290	190	0	65	625
FY2010	0	0	80	0	0	0	220	190	30	65	585
FY2011	0	0	0	0	0	0	300	190	0	50	540
FY2012	0	0	0	0	0	0	300	190	0	50	540
FY2013	0	0	0	0	0	0	80	150	0	50	280
FY2014	0	0	0	0	0	0	80	150	0	50	280
FY2015	0	0	0	0	0	0	80	150	0	0	230
FY2016	0	0	0	0	0	0	830	150	0	0	980
FY2017	0	0	0	0	0	0	80	150	0	0	230
FY2018	0	0	0	0	0	0	80	150	0	0	230
FY2019	0	0	0	0	0	0	80	150	0	0	230
FY2020	0	0	0	0	0	0	80	150	0	0	230
FY2021	0	0	0	0	0	0	80	150	0	0	230
FY2022	0	0	0	0	0	0	80	150	0	0	230
FY2023	0	0	0	0	0	0	80	150	0	0	230
FY2024	0	0	0	0	0	0	80	150	0	0	230
FY2025	0	0	0	0	0	0	80	150	0	0	230
<b>TOTAL</b>	<b>500</b>	<b>0</b>	<b>1247</b>	<b>1350</b>	<b>1050</b>	<b>1200</b>	<b>5103</b>	<b>5376</b>	<b>851</b>	<b>1485</b>	<b>18162</b>

\* Amounts are in \$(000)

\*\* Source U.S. Air Force, 2001d (The estimates from Appendix B were used in preparing the table and figure)

To achieve these short-term objectives, the IRP Project Team plans to pursue the following strategies:

- Employ the program management strategy described in Section 3.3.3,
- Improve the site closeout process,
  - Increase the use of project review meetings,
  - Conduct RAB training on site closeout issues, and
- Continue the partnerships described in Section 2.2

### **3.3.2. Long-Term Objectives (FY2003 – Program Completion)**

The NAS Fort Worth JRB restoration program has the following long-term goals:

- To clean up all medium relative risk sites to lower relative risk level, or have remedial systems in place for 100% of the identified medium relative risk sites by the end of FY 2011,
- To clean up all low relative risk sites to lower relative risk level, or have remedial systems in place for 100% of the identified low risk sites by the end of FY 2014,
- Reduce long-term monitoring and operating costs

To achieve these long-term goals, the IRP project team plans to pursue the following strategies:

- employ the program management strategy described in Section 3.3.3,
- use competitive contracting to reduce long-term operations and monitoring costs, and
- reduce program management costs.

### **3.3.3. Program Management Strategy**

#### **3.3.3.1 Developing and Reviewing the Program Strategy**

The IRP Project Team at the former Carswell AFB will meet prior to each fiscal year to fully scope the upcoming program and prepare for the project validation process. Concurrent with these meetings, the Project Team will perform a site-by-site review of data needs, remedial strategies, performance of ongoing treatment operations, currently available technologies, contaminant migration and associated risks, and other issues of concern. The purpose of these meetings is to review and refine the program strategy for proceeding efficiently toward environmental restoration.

#### **3.3.3.2 Community Involvement**

The strategy for community relations concerning restoration-related activities is documented in the 2001 community relations plan (CRP). AFCEE and the AFBCA are responsible for implementing the community relations activities described therein (SAIC, 2001). In addition,

community involvement for AFP 4 remediation activities that impact NAS Fort Worth JRB will continue to be incorporated into the AFP 4 CRP (U.S. Air Force, 1995a, p. 4-13).

Quarterly RAB meetings will continue to be held to inform the local community of restoration and compliance issues and activities. Public meetings will be held when RI/FS and engineering evaluation/cost analysis reports become available for public review. The meetings provide a forum for explaining preferred cleanup alternatives, answering questions, and accepting public comments. In accordance with the TNRCC Corrective Action Section policy requirements, which became effective on August 1, 2001, there will be a public comment period of 60 days after a proposed and preferred cleanup alternative has been published for sites which will be closed under RRS No. 2, except in those cases when a delay would adversely impact human health or the environment. The responsiveness summary will document the public comments received during the comment period and their consideration in selecting a final remedial action. There will be public notices concerning decision documents, public comment periods, public meetings, and the availability of the administrative record and information repository. These notices will continue to be posted on the former Carswell AFB RAB web site. In addition, a community relations and news media coordinator has been established as a point of contact to answer community inquiries concerning environmental investigations and cleanup activities (SAIC, 2001).

The Air Force has compiled a mailing list that will be used to distribute fact sheets, newsletters, and other relevant information. The fact sheets contain concise, non-technical reports about the restoration programs. They also contain schedules and progress reports, explain technical issues, and respond to community concerns and information needs. There will be periodic revisions of the CRP to assess changing or new concerns as activities progress from study to cleanup (Booz-Allen & Hamilton, Inc., 1997, pp. 29-32).

AFCEE and the AFBCA will implement the CRP for the NAS Fort Worth JRB IRP. AFCEE will complete and maintain the CD-ROM administrative record for the NAS Fort Worth JRB and AFP 4 restoration-related documents. In addition, the information repository will continue to be maintained with documents on site activities and general information about the IRP and BRAC program at the NAS Fort Worth JRB. The information repository has been established at the White Settlement Public Library, White Settlement, Texas. The repository was updated in February 1999 and will be updated again in early 2002.

### **3.3.3.3 Operable Unit/Site Strategy**

The restoration program at NAS Fort Worth JRB is a site-by-site process. IRP sites were designated during early investigations but zones and operable units (OUs) were not developed. Relative risk scoring has been completed for most of the sites where additional work is planned or anticipated. The relative scores are used to evaluate and prioritize sites and media where action is required. Ideally, the scores are used to establish the sequence of remedial action. Because significant actions were completed or already underway before the relative risk approach was developed and implemented at NAS Fort Worth JRB, prioritizing all sites based on relative risk scores alone was not possible. When possible, multiple sites are investigated under a single project. Sites with similar contaminant types and cleanup requirements will also have similar

cleanup strategies.

#### **3.3.3.4 Expedited and Innovative Contracting Procedures**

The IRP Project Team and their service agency, AFCEE, will employ expedited and innovative contracting procedures whenever feasible to streamline environmental restoration and site closure. Specific contracting strategies include the use of AFCEE's established contract vehicles.

#### **3.3.3.5 Standard Approaches to Remedy Selection**

The NAS Fort Worth RPM will meet with the Project Team to discuss conceptual remedies, and to determine the scope of required remediation and potential remedial alternatives for each restoration site. It is the NAS Fort Worth JRB Project Team's objective to treat in-place and avoid off-site disposal, if possible. Therefore, whenever possible and appropriate, the Air Force will propose and advocate for response actions involving in situ treatment and /or natural attenuation, thus avoiding off-site disposal.

#### **3.3.3.6 Land Use Considerations in Risk Assessment and Restoration**

The NAS Fort Worth JRB environmental project team meets on a regular basis with regulatory agency and community representatives to make decisions regarding future land use at the facility that meets the needs of both the community and the Air Force. The decisions made at these meetings serve as a springboard for restoration activities at the facility by restricting the use of the property and initiating only those cleanup actions required to provide a safe environment for inhabitants of the land in the future. By working together, the Air Force, the regulatory agencies, and the surrounding community realize the following mutual benefits:

- accelerated rates of IRP site cleanup,
- creation of uniform goals and expectations for site cleanup among the Air Force, the regulatory agencies, and the community,
- reduction of the costs for site investigations and remedial actions,
- ability to close sites that clearly pose risks below the target risk to human health immediately after the site investigation and assessment of risk is complete, and
- ability to select remedial technologies and begin remedial design at sites requiring cleanup immediately after the site investigation and assessment of risk is complete, thereby allowing sites to be cleaned up at an accelerated pace.

#### **3.3.3.7 Interaction With Compliance Programs**

The NAS Fort Worth JRB Project Team works closely with the U.S. Navy compliance personnel, and other tenants at the base to share environmental data and minimize the duplication of investigative and remedial efforts.

# TAB

*SECTION 4.0*

---

## **4.0 ENVIRONMENTAL RESTORATION MASTER SCHEDULE**

This chapter presents the NAS Fort Worth JRB master schedule of anticipated environmental restoration activities.

### **4.1 ENVIRONMENTAL RESTORATION PROGRAM**

#### **4.1.1 Response Schedules**

The master schedule for future environmental restoration activities under the IRP at NAS Fort Worth JRB is summarized in Table 4.1 by site. The table, which is a simplified presentation of the detailed project schedules developed by the NAS Fort Worth Project Team and IRP contractors is based upon the following general assumptions:

- funding for the fiscal year 2002 program will be approved and projects funded in the quarter in which they are executed,
- contract award will occur within 90 days of receipt of funding, and
- the remedial design phase contractor will write the decision documents and be the inspector for the RA.

The base's ability to meet milestones established in the master schedule depends on several factors including:

- successful completion of planned investigation activities and regulator approval of investigation results,
- adequate scoping of projects to meet IRP objectives,
- timely provision of funding to execute the programs,
- Air Force ability to execute contracts in a timely fashion while meeting Federal Acquisition Regulations and maintaining flexibility to adjust to unforeseen developments with appropriate contract responses, and
- timely completion of regulatory agency reviews for final reports, risk assessments, RA proposals, and site closure recommendations.

The overall site-wide project objectives are as follows:

- a preference toward remediation versus investigation: investigations should be driven by data collection necessary for design or closure,
- a desire to clean up all high relative risk sites to a lower relative risk level, or have remedial systems in place for all of them by the end of fiscal year 2007,

**Table 4.1**  
**Master Schedule**

SWMU/AOC	Site ID	RFA (PR/VSI)	RFI (SI)	CMS (RI/FS)	IRA	CMI (RD/RA)	LTM or O&M	Closure	PCO
SWMU 5	SS002	X	2002 <sup>#</sup>						
SWMU 6	SD016	X	2002 <sup>#</sup>						
SWMU 12	SS004	X	2002 <sup>#</sup>		X				
SWMU 17	LF005	X	2002 <sup>#</sup>		X		2002 <sup>+</sup>		2003 <sup>++</sup>
SWMU 19	FT001	X	2002 <sup>##</sup>		2002 <sup>##</sup>	2003-2009 <sup>##</sup>			2010 <sup>+++</sup>
SWMU 20	FT001	X	2002 <sup>##</sup>		2002 <sup>##</sup>	2003-2009 <sup>##</sup>			2010 <sup>+++</sup>
SWMU 21	FT001	X	2002 <sup>##</sup>		2002 <sup>##</sup>	2003-2009 <sup>##</sup>			2010 <sup>+++</sup>
<b>SWMU 22*<sup>&amp;</sup></b>	<b>NA</b>	X	<b>X</b>			<b>2003<sup>+++</sup></b>	<b>2003 - 2025<sup>+</sup></b> <b>2005 - 2007<sup>++</sup></b> <b>2012<sup>++</sup></b>	<b>2001</b>	
SWMU 24** <sup>&amp;&amp;</sup>	NA	X	2002						
<b>SWMU 25**<sup>&amp;&amp;&amp;</sup></b>	<b>LF006</b>	X	<b>X</b>			<b>X</b>		<b>2001</b>	
<b>SWMU 27</b>	<b>LF008</b>	X	<b>X</b>	<b>X</b>		<b>X</b>		<b>2000</b>	<b>2002<sup>++</sup></b>
SWMU 28	LF001	X	2002 <sup>#</sup>		X		2009 - 2010 <sup>++</sup>		2007 <sup>+++</sup>
SWMU 29	LF002	X	2002 <sup>#</sup>		X		2004 <sup>++</sup> 2011 <sup>++</sup>		
SWMU 30	LF007	X	2002 <sup>#</sup>		X		2004 <sup>++</sup> 2011 <sup>++</sup>		
SWMU 31	SS007	X	2002 <sup>#</sup>		X				
SWMU 49	SD017	X	2002						
SWMU 50	SD018	X	2002						
SWMU 54	SD020	X	2002		2002				
SWMU 55	SD009	X	2002						
SWMU 61	SS015	X	2002 <sup>#</sup>		X				
SWMU 62	LF004	X	2002 <sup>#</sup>		X		2002 <sup>+</sup>		
SWMU 64	ST003	X	X			2002 <sup>###</sup>			
SWMU 66*	WP001	X	2002						
AOC 1	ST004	X	X		2002 - 2003		2004 - 2012		2007 <sup>+++</sup>
AOC 2	WP002	X	2002						
AOC 8*	NA	X	X		2002				
AOC 19	AOC 019	X	2002 <sup>####</sup>						
AOC 20	NA	X	2002	2003 - 2004 <sup>&amp;&amp;</sup>		2005 - 2012 <sup>&amp;&amp;</sup>			
Building 1655 OWS	NA	X	2002 <sup>#####</sup>						
Permeable Reactive Barrier	NA	NA	X	X	2002 - 2004 <sup>&amp;&amp;</sup> 2005 - 2006 <sup>&amp;&amp;&amp;</sup> 2007 - 2010 <sup>&amp;&amp;</sup>	2011 - 2025 <sup>&amp;&amp;</sup>			

## Notes

**SWMUs/AOCs** shown in bold are closed. However they are included in the list, because AFRIMS associates them with ongoing/future projects and/or basewide activities

X Phase has been completed

\* BRAC Site

\*\* BRAC Site being transferred from AFBCA to AFCEE per March 2001 Memo

& Basewide LTM is associated with this closed BRAC site



**Table 4.1 (continued)**  
**Master Schedule**

## Notes (continued):

- && SWMU 24 was closed for soils under RRS2 in March 2001. The current remedial investigation applies to groundwater only. For purposes of AFRIMS, this site is also associated with Paleo Channel investigation and remedial activities from FY 2003 to FY 2012 and with PRB construction and operation from FY2002 to FY 2004 and FY 2007 to FY 2025.
- &&& SWMU 25, a closed site is associated with PRB remedial activities in FY 2005 and FY 2006
- # Field work was completed in 2001. RFI reports and requests for closure, if applicable, will be completed and submitted in 2002
- ## These three sites were originally scheduled for corrective measures study per the FY2002 AFRIMS project schedule. However, currently an interim remedial action is ongoing to remove soil hot spots. RFI reports and requests for closure, if applicable, are expected to be completed and submitted in 2002. Funds have been budgeted in AFRIMS for further remedial efforts between FY 2003 and FY 2009.
- ### RA was completed in 2001. CMI report and requests for closure, if applicable, will be completed and submitted in 2002
- #### IRA was completed in 2001. RFI report and requests for closure, if applicable, will be completed and submitted in 2002
- ##### RFI was completed in 2001. RFI report and requests for closure, if applicable, will be completed and submitted in 2002
- + Basewide LTM
- ++ Basewide Well Abandonment
- +++ 5-Year Review
- ++++ Maintenance of Lawn (Landfill Cover)

AOC	Area of Concern	RD/RA	Remedial Design/Remedial Action
CMI	Corrective Measures Implementation	RFA	RCRA Facility Assessment
LTM	Long-Term Monitoring	RFI/CMS	RCRA Facility Investigation/ Corrective Measures Study
NA	Not Applicable		
IRA	Interim Remedial Action	RI/FS	Remedial Investigation/ Feasibility Study
O&M	Operation and Maintenance		
PR/VS	Preliminary Review/Visual Site Inspection	SI	Site Investigation
RCRA	Resource Conservation and Recovery Act	SWMU	Solid Waste Management Unit

Sources: AFCEE Estimated Schedule to Complete NAS Fort Worth JRB; AFBCA Carswell AFB Compliance Schedule, Hydrogeologic, 2000, UNITEC, 2001b; US Air Force, 2001d; Hydrogeologic 2002, UNITEC 2002.

- An acknowledgment of overall site-wide issues, including the effects associated with the groundwater plume primarily originating at AFP 4,
- a need to develop an overall site-wide approach that emphasizes cost-effective and timely responses in addressing regulatory concerns, and
- a desire to communicate with regulatory agencies early and throughout scoping investigation efforts.

#### **4.2 RESTORATION PROJECT TEAMS AND RESTORATION ADVISORY BOARD MEETING SCHEDULES**

The BCT and RPM meetings are required for the ongoing environmental restoration activities. Regularly scheduled meetings involving AFCEE, the AFBCA, the WRA, regulators, AFP 4, the 301st Tactical Fighter Wing, and other relevant participants will be held to meet the objective of the partnering agreement and MOUs, as well as to ensure timely and coordinated decisions and to promote communications.

The RAB meetings have been held on a quarterly basis since January 1994. Future agenda items include BCP status, restoration activities status, programming/funding status and requirements, and CERCLA Section 120(h) considerations. RAB meetings are held once each quarter in the second month of the quarter (February, May, August, and November), for 2002 and 2003. Table 4.2 shows the BCT/RPM meeting schedule. BCT/RPM meetings are held the second Thursday of every quarter.

**Table 4.2**  
**BCT/RPM Team Meeting Schedule**

<b>2001</b>	<b>2002</b>	<b>2003</b>
February 8	February 7	February 13
May 10	May 9	May 8
August 9	August 8	August 14
November 8	November 8	November 13

# TAB

*SECTION 5.0*

---

## **5.0 TECHNICAL AND OTHER ISSUES TO BE RESOLVED**

This section summarizes technical issues that impact the installation restoration program being conducted at the NAS Fort Worth JRB.

### **5.1 DATA INTEGRATION AND MANAGEMENT**

This section summarizes issues that need to be resolved with regard to managing information gathered and used in the base environmental restoration program.

#### **5.1.1 Action Items**

The following actions are necessary to ensure that an effective information management system is in place for the base environmental restoration program:

- establish a central data file. This central file will be an Environmental Restoration Program Information Management System (ERPIMS) sampling and analysis database, and will also include non-IRP data (e.g., past and present land uses and natural resources),
- require all contractors working at the base to submit all data to the central file in a standardized electronic format. Maintain one integrated database to ensure comprehensive data storage and retrieval,
- use the central file clearinghouse to distribute quality assured data in standard formats to parties with a need for a basewide perspective in activities at the base, including contractors, Air Force decision makers, and regulators, and
- improve the data analysis capabilities so that data can be analyzed as received. Thus, the results of recent field and laboratory work can be fed back into the planning loop more quickly, helping to redirect field efforts as they happen and to determine when enough data is available to support a decision.

#### **5.1.2 Rationale**

Given the number of agencies and contractors associated with the base environmental restoration programs at both the NAS Fort Worth JRB and AFP 4, it is important that all parties involved be able to share data for decision-making. The establishment and maintenance of an electronic database containing sampling, analytical, and other non-IRP data is the most efficient method of sharing data among parties.

### **5.1.3 Status/Strategy**

Most of the data concerning the NAS Fort Worth JRB has been loaded into ERPIMS. Data will continue to be submitted as it is gathered. AFCEE is maintaining and compiling the data for input into ERPIMS for the continuing environmental restoration effort (U.S. Air Force, 1995a, pp. 6-2-6-3).

## **5.2 BACKGROUND LEVELS**

This section summarizes the issues relating to the determination of natural (background) concentrations of elements and compounds in the environment of the NAS Fort Worth JRB prior to the introduction of contamination.

### **5.2.1 Action Items**

No further action is needed.

### **5.2.2 Rationale**

Background concentration values of elements in soil, groundwater, surface water, and sediments must be determined before risk assessments can be conducted. The values must be representative of what is naturally occurring and must be approved by the EPA and state regulators.

### **5.2.3 Status/Strategy**

A basewide background study conducted at the former Carswell AFB determined the background concentrations of 24 inorganic compounds in a variety of media. Values for these background concentrations can be found in the "Basewide Background Study, January 1997, NAS Fort Worth JRB.

## **5.3 RELATIVE RISK EVALUATION AND CLEANUP STANDARDS**

This section summarizes issues pertaining to relative risk evaluations, which were conducted as part of the environmental restoration program at the NAS Fort Worth JRB.

### **5.3.1 Rationale**

A relative risk evaluation is required by the ERP management guidance to be included as part of IRP budget submissions. According to the guidance, the "evaluated relative risk posed to human health and environment at each IRP site is an important factor in determining IRP priorities and negotiating schedules for site cleanup with regulatory agencies." Relative risk was incorporated into the site cleanup goals by the Office of the Deputy Under Secretary of Defense for Environmental Security (U.S. Air Force, 1996b, p 2-2).

### **5.3.2 Status/Strategy**

Relative risk site evaluations are used by AFCEE and the AFBCA to rank SWMUs and AOCs. The evaluation is based on site-specific information concerning the toxicity and migration pathways of contaminant chemicals and the existence of human or ecological receptors to place sites into high, medium, or low relative risk categories. The community also provides input for the relative risk evaluations. The DOD utilizes the results of these evaluations to assist in prioritizing cleanup work (Booz-Allen & Hamilton, Inc., 1997, p. 12).

Risk assessments have been conducted on a case-by-case basis; however, no formal strategy for performing risk assessments has been established. In addition, cleanup standards have not been agreed upon between the Air Force and the TNRCC. The Air Force will use the Texas RRS, Subpart S of Chapter 335, of Title 30 of the Texas Administrative Code, as the protocol for risk assessments to be conducted at the NAS Fort Worth JRB. These standards are for contaminants in soil and groundwater at sites where cleanup to background levels cannot be reasonably achieved. When federal- or state-mandated cleanup standards for a specific hazardous waste or constituent in soils do not exist, the approach for providing remediation criteria for contaminated soils is to conduct a risk assessment specific to the site in question and to use health-based criteria to develop site cleanup standards.

The EPA has provided health-based criteria for a number of hazardous compounds and elements based on oral and inhalation exposure routes in its RFI guidance (EPA, 1989). These health-based criteria are provided for known carcinogens (EPA, 1989, Table 8.6) and systemic toxicants (EPA, 1989, Table 8.7). The criteria are subject to change and should be confirmed by the appropriate regulatory agency prior to use. For many compounds listed in Table 6.2 of the RFI guidance, no guidance levels have been developed (U.S. Air Force, 1995a, p. 6-6).

## **5.4 INTERIM MONITORING OF GROUNDWATER AND SURFACE WATER**

Basewide groundwater sampling began in the second quarter of fiscal year 1995 and continued through the first quarter of fiscal year 1996. Groundwater sampling was restarted in the first quarter of fiscal year 1997 and will continue annually (HydroGeoLogic, Inc., 1998, p. 1-11). In 1998, surface water sampling was conducted at two locations at SWMU 27 (HydroGeoLogic, Inc., 1999b, p. 2-1).

## **5.5 INITIATIVES FOR ACCELERATING CLEANUP**

Initiatives to accelerate cleanup have been incorporated into the IRP. Response actions have been accelerated as much as is currently feasible without development of new technologies (U.S. Air Force, 1995a, p. 6-6). In some instances, Remedial Design/Remedial Action phases will be performed concurrently with IRA phases. The IRP was modified so that the RI/FS studies could be conducted as parallel activities instead of serial activities (U.S. Air Force, 1997a). AFCEE will be combining more phases to accelerate work. The RI and CMS phases can be overlapped. In some instances, the RFI, Remedial Action, and closure documents can be completed at the same

time. AFCEE will be conducting RFIs to closure, and RFIs to Remedial Actions without CMS (Hydrogeologic 2000).

## **5.6 REMEDIAL ACTIONS**

The current Air Force goal is to clean up all high relative risk sites to a lower relative risk level, or have remedial systems in place by the end of fiscal year 2006; (2) to clean up all medium relative risk sites to lower relative risk level, or have remedial systems in place by the end of fiscal year 2010; and (3) to clean up all low relative risk sites by the end of fiscal year 2025 (Hydrogeologic 2000, US Air Force 2001d).

## **5.7 REVIEW OF SELECTED TECHNOLOGIES FOR APPLICATION OF EXPEDITED SOLUTIONS**

AFCEE and the AFBCA are currently working together in order to determine and select the best available remediation technologies. Phytoremediation is a new technology utilizing plants for contaminant remediation. Certain plants can clean up soil and groundwater by way of their ability to take up and remove, or degrade, contaminants from the environment (Ground-Water Remediation Technologies Analysis Center, 1996, p. ii-3). A study at Texas A&M University is being conducted to determine the feasibility of using buffalo grass to remove TCE from the soil (Hydrogeologic 2000).

Monitored natural attenuation is an option for remediation of contaminants through naturally occurring processes in soil and groundwater. These processes of natural degradation act to reduce the quantity and concentration of contamination ("Technical Protocol for Evaluation Natural Attenuation of Chlorinated Solvents in Groundwater," November 1996, pp. 1-1-1-2).

A PRB is also being constructed as an alternative treatment system for a portion of the southern lobe of the basewide TCE plume. A PRB is a passive in-situ treatment zone of reactive material that degrades or immobilizes contaminants as ground water flows through it. PRBs are installed as permanent, semi-permanent, or replaceable units across the flow path of a contaminant plume. Natural gradients transport contaminants through strategically placed treatment media. The media degrade, sorb, precipitate, or remove chlorinated solvents, metals, radionuclides, and other pollutants. These barriers may contain reactants for degrading volatile organics, chelators for immobilizing metals, nutrients and oxygen to enhance bioremediation, or other agents. The installation of the PRB at NAS Fort Worth JRB originated as a technology demonstration project. NAS Fort Worth JRB was chosen as the site to demonstrate the PRB technology. After the initiation of the PRB project, it was determined that the technology could be used as one of the alternatives for the ongoing FFS at NAS Fort Worth JRB. The objective of the FFS, which is being conducted for the southern lobe of the TCE groundwater plume, is to develop and evaluate remedial options that focus on facilitating the transfer of federal land located to the southeast of the current NSA Ft. Worth JRB property (i.e., land surrounding the Carswell Golf Course). As part of the FFS, a risk assessment was completed in order to develop risk based clean up levels

for TCE contamination. The risk assessment is currently in regulatory review and the final FFS will be submitted in early 2002. Construction of the PRB is expected to be completed in 2002.

## **5.8 IDENTIFICATION OF CLEAN PROPERTIES**

No clean properties have been identified at NAS Fort Worth JRB SWMU 58, a closed BRAC site was submitted to the state for status as a clean property. Additional clean sites will be identified after they have undergone remedial efforts.

## **5.9 PARTNERING (USING INNOVATIVE MANAGEMENT, COORDINATION, AND COMMUNICATION TECHNIQUES)**

Partnering has been ongoing with AFP 4 since fiscal year 1993. Regulatory involvement includes the EPA, the TNRCC, and local agencies.



# TAB

*SECTION 60*

---

## 6.0 REFERENCES

- A.T. Kearney, 1989. *RCRA Facility Assessment PR/VSI Report*, March 1989.
- Booz-Allen & Hamilton, Inc., 1997. *Community Relations Plan, Naval Air Station Fort Worth Joint Reserve Base, Carswell Field, Texas*, July 1997.
- CH2M Hill, 1984. *Installation Restoration Program Records Search for Carswell AFB, Fort Worth, Texas*, February 1984.
- CH2M Hill, 1996a. *Draft Groundwater Sampling and Analysis Plan*, August 1996.
- CH2M Hill, 1996b. *Site Characterization Summary Informal Technical Information Report*, November 1996.
- Ground-Water Remediation Technologies Analysis Center, 1996. *Phytoremediation, Technical Overview Report TO-96-03*, October 1996.
- HydroGeoLogic, Inc., 1997. *Draft Work Plan for the Site Investigation of Area of Concern 4, NAS Fort Worth JRB, Texas*, June 1997.
- HydroGeoLogic, Inc., 1998. *Final 1998 Basewide Groundwater Sampling and Analysis Plan*, April 1998.
- HydroGeoLogic, Inc., 1999a. *Final Technical Memorandum, Recommended Actions, Underground Storage Tanks, NAS Fort Worth JRB, Texas*, January 1999.
- HydroGeoLogic, Inc., 1999b. *Draft Site Assessment Report RCRA Facility Investigation -- SWMU 27 (Landfill No. 10) NAS Fort Worth JRB, TX*, March 1999.
- HydroGeoLogic, Inc., 1999c. *Final Work Plans, Site Investigation of 12 Underground Storage Tanks, NAS Fort Worth JRB, Texas*, May 1999.
- HydroGeoLogic, Inc., 2000. *Draft Management Action Plan/BRAC Cleanup Plan, NAS Fort Worth JRB, Texas*, January 2000.
- HydroGeoLogic, Inc., 2002. E-mail from Miquette Rochford, AFCEE Contractor (HGL) January 2002.
- IT Corporation, 1998. *Naval Air Station Fort Worth OWS RCRA Facilities Investigation Addendum Report*, July 1998.
- Jacobs Engineering, 1997. *Basewide Background Study, Volume I, Carswell AFB*, January 1997

National Park Service, 1990. *Archaeological Reconnaissance Survey of Carswell Air Force Base, Tarrant County, Texas*, 1990.

North Central Texas Council of Governments, 1992 *1992 Annual Water Quality Management Plan for North Central Texas, Volume 1, Texas Department of Water Resources Report 269*, April 1992.

Parsons Engineering Science, Inc., 1996. *Technical Protocol for Evaluation of Natural Attenuation of Chlorinated Solvents in Groundwater*, November 1996.

Parsons Engineering Science, Inc., 1997 *Final Remedial Action Plan for the Risk-Based Remediation of Site ST14 (SWMU 68) LPST ID 104819; The Former Base Refueling Area (AOC 7), The French Underdrain System (SWMU 64); and the North Oil Water Separator (SWMU 67), Volume I Report*, July 1997.

Radian Corporation, 1989. *Installation Restoration Program, Remedial Investigation/Feasibility Study, Stage 2, Carswell AFB, Texas*, April 1989.

Radian Corporation, 1990 *IRP Stage 2 Site Characterization Report*, November 1990.

Science Application International Corporation, 2001 *Community Relations Plan, Naval Air Station Fort Worth Joint Reserve Base, Carswell Field, Texas*, September 2001.

Texas Parks and Wildlife Department, 1992. *Special Species and Other Significant Features*, May 1992

Texas Tech University, 1992. *Carswell AFB Historic Sites Inventory*, College of Architecture, September 1991 - May 1992.

Texas Water Commission, 1991. RCRA Hazardous Waste Permit Part B (HW-50289), February 1991.

TNRCC, 1995. Letter to Air Force Base Disposal Agency designating SWMUs and AOCs for investigation or corrective measures, dated March 2, 1995.

TNRCC, 1997. Petroleum Storage Tanks Detail Listing, January 23, 1997.

TNRCC, 1999. Letter to Air Force Base Conversion Agency certifying closure of Container Storage Area, November 1999.

TNRCC, 2000a. Texas Risk Reduction Program Applicability and Grandfathering, RG-366/TRRP-2, March 2000.

TNRCC, 2000b. Memo on "Transition to Texas Risk Reduction Program of projects with portions closed under the 30 TAC 335 Risk Reduction rule," July 2000.

TNRCC, 2001. An Introduction to the Texas Risk Reduction Program, RG-366/TRRP-1, May 2001

UNITEC, 2001a. Personal Communications with Christiana Hewitt, AFCEE Contractor (Universe Technologies Inc), August/September 2001.

UNITEC, 2001b. Personal Communications with Audrie Medina, AFCEE Contractor (Universe Technologies Inc), October 2001.

UNITEC, 2001c. Personal Communications with Audrie Medina, AFCEE Contractor (Universe Technologies Inc), November/December 2001.

UNITEC, 2002. Personal Communications with Audrie Medina, AFCEE Contractor (Universe Technologies Inc), January 2002.

U.S. Air Force, 1986. Carswell AFB Base Comprehensive Plan, 1986.

U.S. Air Force, 1993a. *Basewide Environmental Baseline Survey, Carswell Air Force Base, Texas*, December 1993.

U.S. Air Force, 1993b. *Memorandum of Understanding Between the United States Air Force and the United States Navy on Transfer of Responsibility for Carswell Air Force Base, Texas*, June 9, 1993

U.S. Air Force, 1994a. *Final Environmental Impact Statement Disposal and Reuse for Carswell Air Force Base, Texas*, July 1994.

U.S. Air Force, 1994b. *Memorandum of Understanding Between the United States Air Force and the United States Navy on the Transfer of Responsibility for Carswell Air Force Base*, September 23, 1994.

U.S. Air Force, 1995a. *BRAC Cleanup Plan (BCP), Carswell Air Force Base, Fort Worth, Texas*, April 1995.

U.S. Air Force, 1995b. *Management Action Plan (MAP) Guidebook Update*, June 1995.

U.S. Air Force, 1995c. *BRAC Cleanup Plan Guidebook*, Fall 1995.

U.S. Air Force, 1996a. *Compliance Plan Application*, March 5, 1996.

U.S. Air Force, 1996b. *Environmental Restoration Execution Strategy, Former Carswell Air Force Base, Texas*, August 1996.

U.S. Air Force, 1996c. *Memorandum of Understanding for Environmental Cleanup of Naval Air Station Fort Worth Joint Reserve Base, Carswell Field*, June 19, 1996.

- U.S. Air Force, 1996d. Memorandum to Deputy Assistant Secretary of the Navy, February 25, 1996.
- U.S. Air Force, 1997a. *Compliance Plan Application, Naval Air Station Fort Worth Joint Reserve Base, Carswell Air Force Base*, as amended through 14 October 1997.
- U.S. Air Force, 1997b. *Memorandum of Understanding for Environmental Compliance at Naval Air Station Fort Worth, Joint Reserve Base Carswell Field*, February 25, 1997.
- U.S. Air Force, 1998. *Management Action Plan (MAP) Guidebook Update*, November 1998.
- U.S. Air Force, 2000. *Carswell/Plant 4 Restoration Advisory Board Fact Sheet #10*, November 2000.
- U.S. Air Force, 2001a. *RCRA Permit Renewal Application of Naval Air Station Fort Worth Joint Reserve Base*, February 2001.
- U.S. Air Force, 2001b. *Working Draft Memorandum of Understanding for Management of Former AFBCA Contaminated Sites on Naval Air Station Fort Worth Joint Reserve Base, Fort Worth, Texas*, October 2001.
- U.S. Air Force, 2001c. *Naval Air Station Fort Worth Joint Reserve Base Installation Restoration Program Quarterly Update*, August 2001.
- U.S. Air Force, 2001d. *Air Force Center For Environmental Excellence Cost to Complete (Project Summary, Site List)*, Naval Air Station Fort Worth Joint Reserve Base, October 2001.
- U.S. Air Force, 2001e. *Environmental Restoration Program (ERP) Management Action Plan (MAP) Guidance*, November 2001
- U.S. Air Force, 2002. *Draft Memorandum of Understanding for Management of Former AFBCA Contaminated Sites on Naval Air Station Fort Worth Joint Reserve Base, Fort Worth, Texas*, January 2002.
- U.S. EPA, 1989. *Interim Final RCRA Facility Investigation (RFI) Guidance, Volume I of IV, Development of an RFI Work Plan and General Considerations for RCRA Facility Investigations 30/SW-89-031*, May 1989.
- U.S. EPA, 1994. *RCRA Corrective Action Plan (Final)*, EPA/520-R-94-004, OSWER Directive 9902.3-2A, May 1994.

U.S. Fish and Wildlife Service, 1992. Letter concerning threatened and endangered species, April 1992.

U.S. Fish and Wildlife Service, 1992. Letter containing additional concerns regarding Carswell AFB, August 1992.

U.S. Navy Environmental Office, UST list, n.d.

WC Environmental Group, 1993. *Petroleum Storage Tank Removal and Initial Site Assessment*, July 1993.

WC Environmental Group, 1994. *Limited Site Assessment Report for UST Facility ID No 1628*, February 1994.

Westworth Redevelopment Authority, 1997. *Economic Development Conveyance Application and Business Plan*, September 1997.

# TAB

---

*APPENDIX A*

**APPENDIX A**  
**AGREEMENTS BETWEEN THE AFCEE AND AFBCA AND**  
**BETWEEN THE U.S AIR FORCE AND THE U.S. NAVY**



MEMORANDUM OF UNDERSTANDING  
FOR ENVIRONMENTAL COMPLIANCE  
AT NAVAL AIR STATION FORT WORTH, JOINT RESERVE BASE  
CARSWELL FIELD

A. PREAMBLE

1. Parties to this Agreement: For purposes of this Memorandum of Understanding (MOU), "Navy" will identify those parties affiliated with the Department of the Navy and "Air Force" will identify those parties affiliated with the Department of the Air Force.
2. Background: A Memorandum of Understanding (MOU) was signed by the acting Secretaries of the Air Force and Navy on 08 and 09 June 1993 (Attachment 1) outlining the general terms under which the Air Force would transfer responsibility for portions of the former Carswell Air Force Base (Carswell AFB) to the Navy. These portions of the former Carswell AFB have been identified as Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB) (Attachment 2). A final target date of 30 September 1994 for the transfer of host responsibilities from the Air Force to the Navy was established in that original MOU. On 23 September 1994, the Navy and Air Force executed another MOU (Attachment 3) to amend the earlier MOU. The Navy assumed "host responsibilities" for NAS Fort Worth JRB, on 1 October 1994, but did not assume several key environmental program responsibilities.  
  
In a 26 February 1996 letter (Attachment 4) to the Deputy Assistant Secretary of the Navy (Environment and Safety), the Deputy Assistant Secretary of the Air Force (Environment, Safety, and Occupational Health) interpreted and amended the original MOU. That amendment confirmed the Air Force's acceptance of funding and management responsibility for the final remediation of all environmental restoration requirements which are attributable to Carswell AFB operations which occurred prior to 1 October 1994. In an MOU dated 19 June 1996 (Attachment 5), the parties reached agreement on the cleanup of NAS Fort Worth JRB (Carswell Field). The 19 June 1996 Cleanup MOU will control in the event that it conflicts on cleanup issues with this Compliance MOU.
3. Applicability: This Compliance MOU applies only to NAS Fort Worth JRB as depicted in Attachment 2. Notwithstanding the provisions of this MOU, Navy and Air Force may negotiate alternative terms in an Inter-Service Support Agreement (ISSA).

## B. GENERAL PROVISIONS AND PROGRAM ADMINISTRATION

1. Navy will be the focal point for all environmental compliance matters and provide advice and consultation on all environmental laws, regulations and policies. Navy will recommend the appropriate course of action to resolve environmental discrepancies and interface with regulatory agencies and the public on behalf of Air Force. Specifically, upon accepting full responsibility for the environmental compliance program at NAS Fort Worth JRB, Navy will be the single point of formal contact to environmental regulators, federal and state, for all environmental compliance activities at NAS Fort Worth JRB, including the interpretation of regulations and the coordination of inspections, reports and correspondence. Navy will act as the central repository for all environmental records required to be maintained by law or regulation and will be the lead environmental compliance agency at NAS Fort Worth JRB, responsible for all compliance programs. There will be no areas on NAS Fort Worth JRB which are independent of Navy's control as lead environmental compliance agency. Except as otherwise specified in this MOU, there will be no environmental programs on NAS Fort Worth JRB which are independent of Navy's control as lead environmental compliance agency.
2. Navy will provide general operational environmental policy guidance, e.g. OPNAVINST 5090.1B, as well as detailed requirements and procedures for environmental document processing, coordination, and approval for Air Force actions.
3. Navy will make reasonable efforts to accommodate mission needs of Air Force when implementing environmental programs.
4. On the date this MOU is executed, Navy will assume full responsibility for funding all environmental compliance expenses and managing the NAS Fort Worth JRB environmental compliance program, except as otherwise specified in this MOU. Air Force will provide Navy with the environmental compliance budget information (for prior year, current year, and any future years available), as well as a list of current contractors/contracts utilized for environmental compliance services to insure a smooth transition of the program. Air Force agrees to allow Navy to utilize current Air Force contractors/contracts, on a reimbursable basis, until Navy can obtain its own contractors/contracts for environmental compliance services. Navy and Air Force will work together to apportion financial responsibility for current environmental compliance expenses while the execution of this MOU is pending.
5. Navy and Air Force will work together to expeditiously obtain the recognition of the transfer of the pertinent environmental compliance programs to Navy by the regulators of NAS Fort Worth JRB.

6. Within 30 days of the execution of this MOU, Navy will request by letter that Air Force transfer to Navy all of the records required to be maintained by law and regulation for all of the environmental compliance programs at NAS Fort Worth JRB. Within 30 days of the request from Navy, Air Force will transfer the requested records and do so by preparing a formal letter of transmittal for each group of records being transferred which verifies the content of the records, certifying that all compliance records maintained by Air Force have been transferred. Air Force will identify in this letter any records known to be missing at the time of transfer.
7. Air Force will reimburse Navy to the extent penalties for violations of environmental laws or regulations are attributable to Air Force conduct. If noncompliance with an environmental law or regulation is attributable to Air Force activities, Air Force will take all necessary actions to bring the activity into compliance.
8. Air Force will comply with applicable environmental laws, standards, rules, regulations, permit conditions, and policies. Air Force will make environmental compliance requirements that pertain to its mission known to Navy's property use planning function.
9. Air Force is responsible for the actions of its contractors and will require its contractors to understand and comply with the provisions herein.
10. Air Force will participate in applicable Navy environmental programs.
11. Air Force will grant Navy's environmental management personnel and its authorized contractors access to Air Force facilities. Regulators, who are performing official duties, will be granted access to Air Force facilities after coordinating their access with Navy. However, the access of Regulators shall be managed in conformity with Air Force and Navy regulations and security requirements, as well as in a manner minimizing interference with any military operations at NAS Fort Worth JRB.
12. Air Force environmental standards for facilities shall apply to Air Force owned facilities. For example, Air Force asbestos and lead-based paint standards would apply to renovations funded by Air Force at facilities owned by Air Force.

### C. ENVIRONMENTAL MONITORING, AUDITING & PLANNING

1. Navy will develop a comprehensive environmental monitoring program and perform environmental monitoring as required. Navy will provide sampling and analysis support on a reimbursable basis. Navy will provide sample results to Air Force in a timely manner.

2. Navy will include Air Force in its Environmental Compliance Evaluation (ECE) program and forward the findings to the Commander of the Air Force activity for action concerning Air Force deficiencies. Air Force will assist Navy as necessary during internal and external ECEs and will respond to any noted deficiencies in a timely manner.
3. Navy will coordinate applicable environmental plans with Air Force prior to publication. Site approval and master planning authority resides with the Navy.

#### D. TRAINING

1. Navy will invite Air Force personnel to attend environmental training required by law or regulation and that is offered locally. When the cost of the training is on a per student basis, Air Force will reimburse Navy for its proportionate share of the expense. Navy will provide and coordinate a training schedule to the mutual satisfaction of Navy and Air Force.
2. Air Force will ensure that its personnel and contractors are properly trained in accordance with applicable statutes and regulations. Air Force will identify to Navy environmental training requirements applicable to Air Force activities and personnel.

#### E. WASTE AND HAZARDOUS MATERIAL MANAGEMENT

1. At NAS Fort Worth JRB, Navy will develop and manage a solid waste disposal and recycling program, a hazardous material management program, a hazardous waste management program, and an infectious waste management program.
2. Navy will regulate introduction of new hazardous material onto and onboard the installation. Navy will provide waste minimization guidance and assistance.
3. Unless agreed otherwise, Air Force will reimburse Navy for solid, hazardous, and infectious waste disposal and waste stream characterization costs.
4. Air Force will participate in Navy's Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP)/pharmacy and pollution prevention programs. Air Force will comply with all Navy policies and procedures for waste minimization and recycling. Specifically, Air Force will provide any data required to allow Navy to operate a hazardous material Central Distribution Center (CDC), and thereby allow Navy to implement a CHRIMP at NAS Fort Worth JRB.

5. Air Force will provide information to assist Navy in determining waste disposal requirements and provide a scheduled forecast for disposal requirements.
6. Navy and Air Force will cooperate in developing and implementing a base wide, pollution prevention program, in furtherance of E.O. 12856 and E.O. 12873 . Air Force will provide any data required and Navy will submit all reports for NAS Fort Worth JRB. Air Force will participate in Navy's recycling program to the mutual benefit of both parties.

#### F. MEDIA AND STATUTORY SPECIFIC PROVISIONS

1. Asbestos: All asbestos work (non-BRAC) associated with renovations of facilities owned by Air Force shall be funded by Air Force. Air Force will provide copies of all documentation of such renovations to Navy. Based upon Air Force's documentation, Navy will make the necessary notification to the appropriate environmental regulators and verify such notification to Air Force.
2. Lead-based Paint: All lead-based paint work (non-BRAC) associated with renovations of facilities owned by Air Force shall be funded by Air Force. Air Force will provide copies of all documentation of such renovations to Navy. Based upon Air Force's documentation, Navy will make the necessary notification to the appropriate environmental regulators and verify such notification to Air Force.
3. EPCRA: Air Force will provide any data required by the Emergency Planning and Community Right-To-Know Act (EPCRA) and Navy will submit all reports for NAS Fort Worth JRB.
4. Underground and Aboveground Storage Tanks: Attachment 6 consists of a list provided by Air Force, which identifies the location, size, contents, and physical and regulatory condition of, as well as the party responsible for, all the underground storage tanks at NAS Fort Worth JRB. Attachment 7 consists of a list provided by Air Force, which identifies the location, size, contents, and physical and regulatory condition of all the aboveground storage tanks at NAS Fort Worth JRB. Within 30 days of the execution of this MOU, Navy and Air Force will determine in writing which party will be responsible for each aboveground storage tank. When completed, this written determination will be appended to or otherwise reflected on Attachment 7. Air Force will be responsible for closing the tank sites, at which the tanks have been removed prior to the execution of this MOU, in accordance with Texas Natural Resource Conservation Commission (TNRCC) standards, to include the investigation and necessary restoration of soil, groundwater, and surface water contamination. Navy will be responsible for maintaining the compliance status of the remaining tanks identified in Attachment 6, as well as for those specified in the updated version of Attachment 7. In

accordance with the 19 June 1996 Cleanup MOU, Air Force will be responsible for the investigation, cleanup, and closure of tanks not already identified in Attachments 6 and 7. Air Force and Navy will work together to transfer tank registration from Air Force to Navy.

5. Noise: Air Force will comply with Navy requirements related to noise. Navy will prepare all Air Installation Compatible Use Zone (AICUZ) studies. Air Force will coordinate all significant changes in flight activities with Navy prior to implementation.
6. Radon: Navy will fund future radon studies. All abatement work (non-BRAC) associated with facilities owned by Air Force shall be funded by Air Force.
7. NEPA and CAA Conformity: Both Navy and Air Force will prepare their own documentation in accordance with their own respective regulations in order to comply with the National Environmental Policy Act (NEPA) and the conformity provisions of the Clean Air Act (CAA). Each party will act as cooperating agency for the other party's actions to the extent required by law and regulation. Air Force will provide copies of the appropriate environmental planning documents, for example the AF Forms 813, 814, and 815, as well as any associated documents, to Navy upon completion of such forms or documents.

#### G. PERMITTING

1. Navy will submit required permit applications and be the formal point of contact regarding all environmental compliance actions, maintain any necessary environmental permits, and ensure that Air Force is aware of all permit requirements, unless specified otherwise in this MOU.
2. Air Force shall, in a timely manner, provide Navy all necessary information required by Navy to obtain, maintain, and substantiate compliance with environmental permits or permit exemptions covering Air Force operations. Environmental permits required by law or regulation will be obtained prior to start of Air Force activities, including construction. Air Force will immediately notify Navy of actual or potential permit violations.
3. Specific Permits:
  - 3.1 Air: In light of the U.S. EPA Major Source Determination for Military Installations Memorandum of 2 August 1996 (Attachment 8), Navy and Air Force will cooperate in developing an overall strategy for compliance with permit requirements under the Clean Air Act. For example, it may be in the best interests of the parties for Air Force to maintain the air permit for the existing jet engine test cell it controls.

- 3.2 Water: Air Force Base Conversion Agency (AFBCA) will transfer the National Pollutant Discharge Elimination System (NPDES) permit to Navy upon divestiture of the three AFBCA controlled outfalls. Until the date of permit transfer or until Navy has established its own sampling capability, whichever occurs last, Navy will reimburse Air Force for sampling expenses incurred to satisfy the NPDES permit requirements within NAS Fort Worth JRB and for the White Settlement infall.
- 3.3 Waste: AFBCA will close the Treatment, Storage, and Disposal (TSD) facility in accordance with TNRCC standards and provide Navy with the closure documents. Within the boundaries of NAS Fort Worth JRB, Navy will be identified to TNRCC as the owner and Air Force as the tenant of Navy for all waste generation and waste management activities after the execution of this MOU. Air Force shall be responsible for executing the TNRCC Compliance Plan in a manner consistent with the 19 June 1996 Cleanup MOU.
- 3.4 Potable Water: Within 30 days of the execution of this MOU, AFBCA will submit a modification of its Potable Water permit to exclude NAS Fort Worth JRB, and Navy will apply for a Potable Water permit for NAS Fort Worth JRB. Until Navy receives its Potable Water permit, AFBCA will continue to provide water sampling and analytical services to Navy on a reimbursable basis.
- 3.5 Sanitary Sewer: Within 30 days of the execution of this MOU, AFBCA, in coordination with Navy, will request modification of the existing Sanitary Sewer permit to exclude NAS Fort Worth JRB, and Navy will verify it has applied for a Sanitary Sewer permit for NAS Fort Worth JRB.
- 3.6 Tank Registration: Within 30 days of the execution of this MOU, Air Force and Navy will submit a request to change the tank registration for the tanks indicated to be transferred to Navy in Attachments 6 and 7. Until Navy obtains the appropriate contract services, AFBCA will continue to provide tank sampling and monitoring services to Navy on a reimbursable basis.

#### H. EMERGENCY RESPONSE

1. Air Force is responsible for initial response and clean-up of all releases attributable to its activities that are within its capabilities of response. Air Force will immediately report to Navy all hazardous substance releases in accordance with Navy plans and directives.
2. Navy will provide emergency response support and necessary follow-up for releases attributable to Air Force and, in particular, will be the lead agency for emergency response programs. Except as otherwise required by law or regulation or specified in this agreement,

Navy will notify the appropriate regulatory agencies and submit reports of reportable releases as required by law or regulation. Navy will provide Air Force with verification that Navy has made the appropriate notifications.

3. Navy will complete spill response plans for NAS Fort Worth JRB. Navy will include Air Force in exercise scenarios as appropriate.
4. Notwithstanding the above, Air Force will maintain the Hydrazine Spill Response capability for its operations at NAS Fort Worth JRB. In addition, Air Force will complete the Hydrazine Spill Plan for its operations at NAS Fort Worth JRB.
5. Upon execution of this MOU, Navy will assume responsibility for performing emergency responses at NAS Fort Worth JRB, as described in this section.

## I. NOTIFICATION

1. Navy will immediately notify Air Force, in writing, of enforcement actions taken by environmental regulators which may impact Air Force operations or which are attributable to the action or inaction of Air Force or its contractors. For purposes of this MOU, "enforcement actions" includes but is not limited to: notices of violation, notices to comply, and letters of warning. Navy will immediately notify Air Force, in writing if time permits, of any regulator visits and pertinent requests for information. Navy will immediately notify Air Force, in writing, of any new or changed environmental requirements that may impact Air Force operations.
2. Air Force will immediately notify Navy, in writing, of enforcement actions taken by environmental regulators which may impact Navy operations or which are attributable to the action or inaction of Air Force or its contractors. Air Force will notify Navy, in writing, of any action or event which either results in, or may result in, environmental, natural resource, or cultural resource degradation, or that has a potential for controversy.
3. Air Force will immediately notify Navy, in writing, of any regulator visits and requests for information. Air Force will coordinate with Navy on all new, modified, or decommissioned pollution sources or regulated activities on the installation used or performed by Air Force or its contractors. Examples include well closures, tank removals, and the use of temporary sources, such as generators.
4. Air Force and its contractors will not disturb any historical, archeological, or cultural artifacts. In the event such items are discovered on the installation, Air Force will



immediately notify Navy and protect the site and material from further disturbance until clearance is provided to proceed.

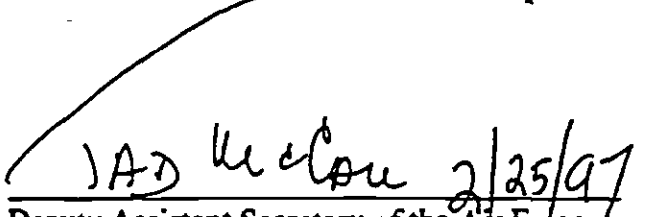
## J. ENFORCEMENT ACTION

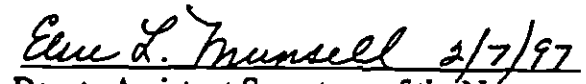
1. Navy will notify the Air Force commander, or the equivalent, immediately of any enforcement actions taken by environmental regulators in which the violation may be attributed to the action or inaction of Air Force or its contractors either attached to, assigned to, or providing services on NAS Fort Worth JRB. Navy will provide Air Force with a copy of the enforcement action, with all supporting documentation, and a brief synopsis of reasons for concluding that Air Force or its contractor is responsible for the statutory or regulatory violation.
2. If a civil fine or penalty is sought in connection with an alleged violation, Navy shall request that the regulatory agency provide a breakdown of the civil fine or penalty for each violation. Based upon the breakdown received, or the enforcement policies of the relevant agencies, Navy will identify to Air Force that portion of the civil fine or penalty that it believes is attributable to violations of law or regulation by Air Force or its contractors, along with a brief statement of reasons in support of that conclusion.
3. Navy will provide Air Force a reasonable opportunity to review and coordinate the proposed fine or penalty, and to participate in preparing any response to the enforcement action which involves Air Force operations, facilities, or contractors.
4. When there is an alleged Air Force violation, Navy will coordinate with Air Force all strategies to resolve enforcement actions, fines, or penalties, including negotiation and litigation.
5. Upon conclusion of an enforcement action, which results in the imposition of a fine or penalty for violations attributable to Air Force operations, facilities, or contractors, Navy will coordinate with Air Force to ensure the proper transfer to Navy of an amount equal to Air Force's attributable portion of the fine or penalty.
6. Air Force will transfer funds for all civil fines or penalties that are attributable to Air Force operations or facilities, or the operations or facilities of its contractors, as provided above. Air Force will provide Navy with timely comments or positions on the propriety of any enforcement action, including civil fines and penalties. Air Force will assist Navy as needed, in all efforts to resolve enforcement actions, including civil fines or penalties. Air Force will take appropriate action to correct the violation that led to, or contributed to, the enforcement action. Where resolution of civil fines or penalties involve implementation of supplemental

environmental projects (SEPs), Air Force will provide Navy with a list of all projects which may qualify as a SEP.

#### K. MISCELLANEOUS

1. Duration: This MOU will remain in effect unless terminated, in writing, by the mutual consent of the parties.
2. Changes: The parties will make changes to this MOU in writing and by mutual consent.
3. Dispute Resolution: Any disagreement which may arise regarding the terms of this MOU shall be elevated through respective command channels until resolved. All disagreements shall be resolved at the lowest level possible.

  
Deputy Assistant Secretary of the Air Force  
(Environment, Safety, and Occupational Health)

  
Deputy Assistant Secretary of the Navy  
(Environment and Safety)

*(DRAFT AS OF 16 OCTOBER 2001)*

**MEMORANDUM OF UNDERSTANDING BETWEEN THE  
AIR FORCE BASE CONVERSION AGENCY (AFBCA) AND THE  
AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE (AFCEE)  
FOR THE MANAGEMENT OF FORMER AFBCA CONTAMINATED SITES ON  
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE FT. WORTH, TX  
AND THE MANAGEMENT OF THE STATE-ISSUED RESOURCE CONSERVATION  
AND RECOVERY ACT (RCRA) PERMIT FOR THE FORMER CARSWELL AIR  
FORCE BASE, TX**

**1. PARTIES TO THIS AGREEMENT**

Headquarters Air Force Base Conversion Agency – HQ AFBCA  
Air Force Center for Environmental Excellence – AFCEE

**2. BACKGROUND**

On 19 June 1996, the parties to this agreement entered into a Memorandum of Understanding (MOU) with the purpose of delineating responsibility for the cleanup and management of contaminated areas located within the boundaries of former Carswell Air Force Base (AFB). The 1996 MOU divided management responsibility for environmental restoration efforts of the former Carswell Air Force Base between HQ Air Force Center for Environmental Excellence (HQ AFCEE) and the Air Force Base Conversion Agency (AFBCA). Under the 1996 MOU, HQ USAF/ILEV assumed responsibility for the remediation of sites located within the boundaries of Naval Air Station Fort Worth Joint Reserve Base (NASFWJRB), with HQ AFCEE assuming management and oversight responsibilities for these sites and AFBCA assuming responsibility for the remediation of sites situated outside NASFWJRB, but within the original boundaries of the former Carswell AFB.

**3. PURPOSE**

The purpose of this Agreement are twofold. Firstly, to transfer management responsibilities of six AFBCA cleanup sites (Attachment 1). Upon the signing of this agreement, AFBCA will no longer be responsible for the management and oversight of these six sites, and HQ AFCEE will assume management and oversight responsibility for these sites.

Secondly, to transfer management responsibility for the state-issued Resource Conservation and Recovery Act (RCRA) hazardous waste permit (HW-50289). With the signing of this document, HQ AFCEE will assume responsibility for the RCRA permit which covers all restoration sites and hazardous waste management facilities situated within the property boundaries of the former Carswell AFB. Attachment 2 lists all the contaminated sites on the former Carswell AFB, including NASFWJRB, and their current status and organization responsible for management and oversight

With the exception of the six cleanup sites listed at Attachment 1, and their management responsibilities for the RCRA permit, this document does not affect the responsibilities or obligations of AFBCA, HQ USAF/ILE, HQ AFCEE, NASFWJRB, or NASFWJRB tenant organizations that were assumed in prior agreements, or the obligation of these organizations to comply with existing state or federal environmental regulations and statutes.

**4. ROLES AND RESPONSIBILITIES** – The following responsibilities are agreed to by the parties to this Agreement as they apply to environmental restoration program efforts of the six cleanup sites listed in Attachment 1, and compliance with the conditions set by the state-issued RCRA permit.

a. **AFBCA** –AFBCA holds the corporate knowledge for the six sites subject to this Agreement. As of 1 November 2000, the function and responsibilities of the Carswell AFB Base Realignment and Closure (BRAC) Environmental Coordinator was transferred from the AFBCA to HQ AFCEE. HQ AFBCA will act in a support capacity to HQ AFCEE for the sites covered by this Agreement. AFBCA agrees to the following:

1) Provide HQ AFCEE with historical, programming, and related documents and electronic files to facilitate a smooth transition of responsibilities for the six sites and transfer of the RCRA permit covered by this Agreement. In addition, AFBCA will assist with the obligations that HQ AFCEE assumes under this Agreement;

2) Assist in the transfer of the RCRA permit, issued by the State of Texas, from AFBCA to HQ AFCEE through the Texas RCRA permit renewal/process. AFBCA will compensate HQ AFCEE for any fines imposed by state or federal regulatory agencies for its failure to abide by permit conditions, and for other violations of applicable federal and state law relating to the remediation activities of those sites for which AFBCA retains restoration responsibility (Attachment 2). In addition, should HQ AFCEE be required by state or federal regulatory agencies to undertake cleanup actions to bring said sites or AFBCA activities into compliance with applicable state or federal regulations, AFBCA will perform the required actions or compensate HQ AFCEE for the costs associated with such undertaking. AFBCA will continue to provide the management support and funding for those sites listed on the RCRA permit for which AFBCA retains responsibility (Attachment 2) and will prepare permit modifications, as needed, for those sites for HQ AFCEE review and submittal to the regulatory agencies;

3) Provide, for the remainder of FY 2001 and all of FY 2002, sufficient funds to HQ AFCEE, according to a mutually-agreed budget procedure, for any costs associated with post-closure care of the six cleanup sites on NASFWJRB for which management responsibilities are transferred by this Agreement. Such post-closure activities may include periodic landfill cap inspections, repair of landfill cover material due to erosion, delineation of possible migration of contaminants, and any further remedial actions required by the RCRA permit and state and federal regulation or administrative order. AFBCA will provide sufficient funds to HQ AFCEE for any share of future responsibilities through FY02, as deemed necessary by the regulators overseeing the remediation of the six sites that AFBCA may incur for groundwater monitoring attributable to the six sites. Currently, the State of Texas and USEPA Region VI regulators have determined that the six sites do not constitute a source of contaminant release to the groundwater and that no groundwater monitoring responsibilities are attributable to these sites;

4) Notwithstanding any other provision in this agreement, with regards to ~~SWMU 24 (Waste Pile No. 7)~~ to the southern groundwater trichloroethylene (TCE) plume, the allocation of funding responsibilities for this TCE plume site will be negotiated as part of the update to the June 1996 Memorandum of Understanding, regarding the groundwater trichloroethylene plume that is the subject of following the completion of the Focused Feasibility Study for the Southern TCE Plume;

5) Allow the Air Force and its restoration program contractors the use of any government equipment under the control of AFBCA so that government cost savings can be realized, and

6) Coordinate any BRAC restoration or construction projects with HQ AFCEE representatives to ensure that government resources are conserved. A goal of frequent communication shall be established to ensure a good working relationship between the parties to this Agreement

b. **HQ AFCEE** – HQ AFCEE will act as MAJCOM, Remedial Program Manager (RPM) and Service Center for the six sites covered by this Agreement and listed in Attachment 1, and as such will assume the following responsibilities:

**1) MAJCOM Responsibilities**

a) Appoint an RPM in writing to execute all phases of restoration program for HQ USAF/ILEV's sites;

b) For FY03 and beyond, plan, program, budget and set program resource priorities as well as establish project goals and completion schedules for all actions required under this Agreement; and

c) Provide ILEV officials annual budget projections of the costs related to management of the six sites transferred to HQ AFCEE control under this Agreement.

d) Assume the responsibility of reporting the status of the six sites covered by this Agreement and listed in Attachment 1 through the Air Force Restoration Information Management System (AFRIMS).

**2) RPM Responsibilities**

a) Execute the restoration program strategy contained in the Management Action Plan and other execution plans. Load historical restoration program data into HQ AFCEE's Environmental Restoration Management Program Management System (ERPIMS) database as appropriate;

b) Ensure that the environmental restoration program complies with all applicable laws and regulations; identify cleanup criteria and accomplish tasks in accordance with regulatory agreements;

c) Assume final approval authority as Restoration Program Manager (RPM) on all technical matters for the sites covered by this Agreement;

d) Maintain, as of 1 October 1996, both the Administrative Record (AR) and the Information Repository (IR) for the sites covered by this Agreement. HQ AFBCA will provide HQ AFCEE with documents and electronic files relating to the six sites and RCRA permit covered by this Agreement for inclusion in the AR/IR. HQ AFCEE will provide the other parties to this Agreement with electronic data and reports relating to the investigation and/or cleanup of the six sites if HQ AFCEE is requested to do so;

e) Coordinate with the Navy and with the 301 Fighter Wing operations, on environmental restoration program investigations and/or cleanups having an impact on their operations at former Carswell AFB (BRAC) sites or Air Force Plant 4 sites; and

f) Assume Air Force and regulator accountability for the RCRA permit. However, AFBCA will continue to provide the management support and funding for those sites listed on the RCRA permit for which HQ AFBCA retains management responsibilities (Attachment 2).

**3) AFCEE Service Center Responsibilities**

*(DRAFT AS OF 16 OCTOBER 2001)*

a) Provide technical, legal, contracting and contract management support for restoration projects and other actions covered by this Agreement;

b) Act as the Air Force Contracting Officer's Representative for all restoration program delivery orders. The RPM will develop restoration program requirements and award and execute delivery orders with the assistance of the Contracting Office. The RPM will ensure that day-to-day operations by contractors are performed within the scope of work; and provide oversight and technical direction of restoration program field activities; and,

c) Oversee and manage the RCRA permit issued for the former Carswell AFB, to include complying with all regulatory and administrative requirements mandated by regulatory officials or applicable regulation.

**5. COMMUNICATION:** Communication is critical to the success of any program. The parties to this Agreement pledge themselves to full and open communication. In addition to specific roles and responsibilities in Section 4 of this MOU, the following initiatives will be undertaken as part of this Agreement:

a) As provided in the June 1996 MOU, RPMs will oversee the combined Restoration Advisory Board (RAB) for the Air Force Plant 4 restoration program, the NASFWJRB restoration program, and the former Carswell AFB restoration program. Specific program elements will be discussed separately, but the same community members will be invited. The responsibility for government co-chairperson will continue to rotate each meeting between Air Force Plant 4, NAS Fort Worth JRB and the former Carswell AFB ;

b) As agreed in the June 1996 MOU, RPM meetings for NASFWJRB restoration program, Air Force Plant 4 installation restoration program, and former Carswell AFB (BRAC) programs will be scheduled as closely together as possible to facilitate communication with regulators common to both programs,

c) Parties to this Agreement will be invited to attend any regularly scheduled regulatory or RAB meetings in order to keep abreast of program developments. Adequate notification of scheduled meetings shall be provided and meeting minutes shall be distributed to the parties to this agreement; and

d) Parties to this Agreement shall strive to hold frequent management meetings to keep each other abreast of developments in, or impacts to the restoration efforts of the former Carswell AFB and to discuss program execution.

**6. DURATION OF AGREEMENT** – This Agreement will remain in effect until terminated by mutual consent of all parties.

**7. CHANGES** – The parties will make changes to this agreement only by mutual consent.

**Attachments:**

Attachment 1, Sites Transferring from HQ AFBCA to HQ AFCEE Management  
Attachment 2, List of Sites and Responsible Organization

---

PER A. KORSLUND, Colonel, USAF  
Director, Environmental Restoration  
HQ Air Force Center for Environmental Excellence

---

LAWRENCE R. LEEHY  
Program Manager, Division C  
Air Force Base Conversion Agency

## Attachment 1

## Sites Transferring from AFBCA to HQ AFCEE Management

SWMU/AOC	Name	IRP Designation	Status
SWMU 18	Fire Training Area 1	NA	NFA - Closure under TNRCC RRS2
SWMU 23	Landfill 5	LF-05	NFA - Closure under TNRCC RRS2, Post Closure Care
SWMU 24	Waste Burial Area	WP-07	NFA - Closure under TNRCC RRS2
SWMU 25	Landfill 8	LF-08	NFA - Closure under TNRCC RRS2
AOC 5	Grounds Maintenance Yard	NA	NFA - Closure under TNRCC RRS2
AOC 14	Unnamed Stream	NA	NFA - Closure under TNRCC RRS2



## Attachment 2

## List of Sites and Responsible Organization

SWMU/AOC	Name	IRP Designation	Status	OPR
SWMU 1	Pathological Waste Incinerator		NFA	AFBCA
SWMU 2	Pathological Waste Storage Shed		NFA	AFBCA
SWMU 3	Metal Cans		NFA	AFBCA
SWMU 4	Facility Dumpsters		NFA	AFBCA
SWMU 5	B1628 Waste Accumulation Area	SS-002	Investigation Ongoing	HQ AFCEE
SWMU 6	B1628 Wash Rack and Drain	SD-016	Investigation Ongoing	HQ AFCEE
SWMU 7	B1628 O/W Separator	SD-000	NFA	HQ AFCEE
SWMU 8	B1628 Sludge Collection Tank	SD-014	NFA	HQ AFCEE
SWMU 9	B1628 Work Station Waste Accumulation Area		NFA	HQ AFCEE
SWMU 10	B1617 Work Station Waste Accumulation Area		NFA	HQ AFCEE
SWMU 11	B1617 Waste Accumulation Area	SS-003	Closure Pending NFA	HQ AFCEE
SWMU 12	B1619 Waste Accumulation Area	SS-004	Investigation Ongoing	HQ AFCEE
SWMU 13	B1710 Waste Accumulation Area	SS-005	NFA	HQ AFCEE
SWMU 14	B1060 Bead Blaster Collection Tray		NFA	HQ AFCEE
SWMU 15	B1060 Paint Booth Vault		NFA	HQ AFCEE
SWMU 16	B1060 Waste Accumulation Area	SS-006	NFA	HQ AFCEE
SWMU 17	Landfill 7	LF-005	Investigation Ongoing	HQ AFCEE
SWMU 18	Fire Training Area 1	FT-08	NFA	HQ AFCEE
SWMU 19	Fire Training Area 2	FT-001	Investigation Ongoing	HQ AFCEE
SWMU 20	Waste Fuel Storage Tank	FT-001	Investigation Ongoing	HQ AFCEE
SWMU 21	Waste Oil Tank	FT-001	Investigation Ongoing	HQ AFCEE
SWMU 22	Landfill 4	LF-04	NFA	AFBCA
SWMU 23	Landfill 5	LF-05	NFA Investigation Ongoing	HQ AFCEE
SWMU 24	Waste Burial Area	WP-07	NFA	HQ AFCEE
SWMU 25	Landfill 8	LF-006/LF-08	NFA	HQ AFCEE
SWMU 26	Landfill 3	LF-003	Closure Pending Investigation Ongoing	HQ AFCEE
SWMU 27	Landfill 10	LF-008	NFA	HQ AFCEE
SWMU 28	Landfill 1	LF-001	Investigation Ongoing	HQ AFCEE

(DRAFT AS OF 16 OCTOBER 2001)

SWMU/AOC	Name	IRP Designation	Status	OPR
SWMU 29	Landfill 2	LF-002	Investigation Ongoing	HQ AFCEE
SWMU 30	Landfill 9	LF-007	Investigation Ongoing	HQ AFCEE
SWMU 31	B1050 Waste Accumulation Area	SS-007	Investigation Ongoing	HQ AFCEE
SWMU 32	B1410 Waste Accumulation Area	SS-008	<del>NFA Closure</del> Pending	HQ AFCEE
SWMU 33	B1420 Waste Accumulation Area	SS-009	NFA	HQ AFCEE
SWMU 34	B1194 Waste Accumulation Area	SS-010	NFA	HQ AFCEE
SWMU 35	B1194 Vehicle Refueling Shop O/W Separation System	SD-002	Closure Pending	HQ AFCEE
SWMU 36	B1191 Vehicle Maintenance Shop O/W Separator	SS-011	<del>NFA Closure</del> Pending	HQ AFCEE
SWMU 37	B1269 PCB Transformer Building	SD-003	Closure Pending	HQ AFCEE
SWMU 38	B1643 Waste Accumulation Area		NFA	HQ AFCEE
SWMU 39	B1643 O/W Separation System	SS-012	NFA	HQ AFCEE
SWMU 40	B1414 O/W Separation System Field Maintenance Squadron Aerospace Ground Equipment	SD-004	Closure Pending	HQ AFCEE
SWMU 41	B1414 Waste Accumulation Area	SD-005	Closure Pending	HQ AFCEE
SWMU 42	B1414 Non-Destructive Inspection (NDI) Waste Accumulation Area	SS-013	NFA	HQ AFCEE
SWMU 43	B1027 O/W Separation System at the Aircraft Washing Hangar		NFA	HQ AFCEE
SWMU 44	B1027 Waste Oil Tank Vault at the Aircraft Washing Hangar	SD-006	Closure Pending	HQ AFCEE
SWMU 45	B1191 Vehicle Maintenance Shop O/W Separator	SD-015	NFA	HQ AFCEE
SWMU 46	B1027 Waste Accumulation Area		NFA	HQ AFCEE
SWMU 47	B1015 Jet Engine Test Cell O/W Separator		Closure Pending	HQ AFCEE
SWMU 48	B1048 Fuel System Floor Drains		NFA	HQ AFCEE
SWMU 49	Aircraft Washing Area No. 1	SD-017	Investigation Ongoing	HQ AFCEE

SWMU/AOC	Name	IRP Designation	Status	OPR
SWMU 50	Aircraft Washing Area No. 2	SD-018	Investigation Ongoing	HQ AFCEE
SWMU 51	B1190 Central Waste Holding Area	SS-014	<del>NFA Closure Pending</del>	HQ AFCEE
SWMU 52	B1190 O/W Separation System	SD-008	Closure Pending	HQ AFCEE
SWMU 53	Storm Water Drainage System	SD-019	NFA	HQ AFCEE
SWMU 54	Storm Water Interceptors	SD-020	Investigation Ongoing	HQ AFCEE
SWMU 55	East Gate Oil Water Separator	SD-009	Investigation Ongoing	HQ AFCEE
SWMU 56	B1405 Waste Accumulation Area		NFA	HQ AFCEE
SWMU 57	B1432/1434 Waste Accumulation Area		NFA	HQ AFCEE
SWMU 58	Pesticide Rinse Area	WP-11	NFA	HQ AFBCA
SWMU 59	B8503 WSA Waste Accumulation Area	OT-15	<del>NFA Closure Pending</del>	HQ AFBCA
SWMU 60	B8503 Radioactive Waste Burial Site	OT-15	NFA	HQ AFBCA
SWMU 61	B1320 Power Production Maintenance Facility Waste Accumulation Area		Investigation Ongoing	HQ AFCEE
SWMU 62	Landfill 6	LF-004	Investigation Ongoing	HQ AFCEE
SWMU 63	Entomology Dry Well	OT-12	NFA	HQ AFCEE
SWMU 64	French Underdrain System	ST-003	Investigation Ongoing	HQ AFCEE
SWMU 65	WSA Disposal Site	OT-15	<del>NFA Closure Pending</del>	HQ AFBCA
SWMU 66	Sanitary Sewer System		Investigation Ongoing	HQ AFBCA/HQ AFCEE
SWMU 67	B1340 O/W Separator	ST-003	NFA	HQ AFBCA
SWMU 68	POL Tank Farm	ST-001	<del>NFA Closure Pending</del>	HQ AFCEE
AOC 1	B1518 Service Station	ST-004	Investigation Ongoing	HQ AFCEE
AOC 2	Airfield Groundwater Plume	WP-002	Investigation Ongoing	HQ AFCEE
AOC 3	Waste Oil Dump	DP-17	NFA	HQ AFCEE
AOC 4	Fuel Hydrant System	ST-005	<del>NFA Closure Pending</del>	HQ AFCEE
AOC 5	Grounds Maintenance Yard		NFA	HQ AFBCA
AOC 6	RV Parking Area	SS-001	NFA	HQ AFCEE
AOC 7	Base Refueling Area	ST-002	<del>NFA Closure Pending</del>	HQ AFCEE
AOC 8	SW Aerospace Museum		<del>Closure Pending Investigation Ongoing</del>	HQ AFBCA
AOC 9	Golf Course Maintenance Yard		NFA	HQ AFBCA

SWMU/AOC	Name	IRP Designation	Status	OPR
AOC 10	B1064 O/W Separator	SD-010	Closure Pending	HQ AFCEE
AOC 11	B1060 O/W Separator	SD-011	Closure Pending	HQ AFCEE
AOC 12	B4210 O/W Separator	SD-012	Closure Pending	HQ AFCEE
AOC 13	B1145 O/W Separator	SD-013	Closure Pending	HQ AFCEE
AOC 14	Unnamed Stream		NFA	HQ AFCEE
AOC 15	B1190 Storage Shed	SS-016	NFA	HQ AFCEE
AOC 16	Family Camp		NFA	HQ AFBCA
AOC 17	Suspected Landfill	AOC 017	NFA	HQ AFCEE
AOC 18	Suspected Fire Training Area A	AOC 018	NFA	HQ AFCEE
AOC 19	Suspected Fire Training Area B	AOC 019	Investigation Ongoing	HQ AFCEE

**BEST AVAILABLE  
COPY**

**MEMORANDUM OF UNDERSTANDING (MOU)  
BETWEEN THE UNITED STATES AIR FORCE (USAF)  
AND THE UNITED STATES NAVY (USN)  
ON TRANSFER OF RESPONSIBILITY FOR  
CARSWELL AIR FORCE BASE (AFB), TEXAS**

The Department of Defense (DoD) recommended to the 1993 Defense Base Closure Realignment Commission (DBCRC) that a DoD reserve area be established at Carswell AFB. In an 18 May 93 letter to DBCRC, signed by the acting Secretary of the Air Force and the acting Secretary of the Navy, it was agreed that the Navy Reserve would assume the responsibilities as host and operator of the airfield at Carswell AFB should the recommendations to the DBCRC concerning Carswell AFB be adopted.

The purpose of this MOU is to establish an overarching agreement to be used to set ground rules for the transition of responsibilities from the Air Force to the Navy. The agreement will establish general guidelines and a time table for the transfer of responsibilities. This MOU will ensure this transfer is implemented without interruption in services or mission degradations. We envision other MOUs being established between the Air Force and Navy covering the transfer of specific areas of responsibilities, such as Traffic Control Services.

Assuming the DoD recommendations to the DBCRC are adopted, and after the official closure of Carswell AFB on September 30, 1993, the Air Force Reserve will assume the responsibilities as host and operator of Carswell AFB until the Navy Reserve can assume the responsibilities. By mutual agreement, the Air Force Reserve will incrementally transfer host responsibilities to the Navy Reserve, with the final transfer of responsibilities targeted for 30 September 1994.

*Frank B. Kelso, Jr.*  
FRANK B. KELSO, Admiral, USN  
Acting Secretary of the Navy

09 JUN 1993

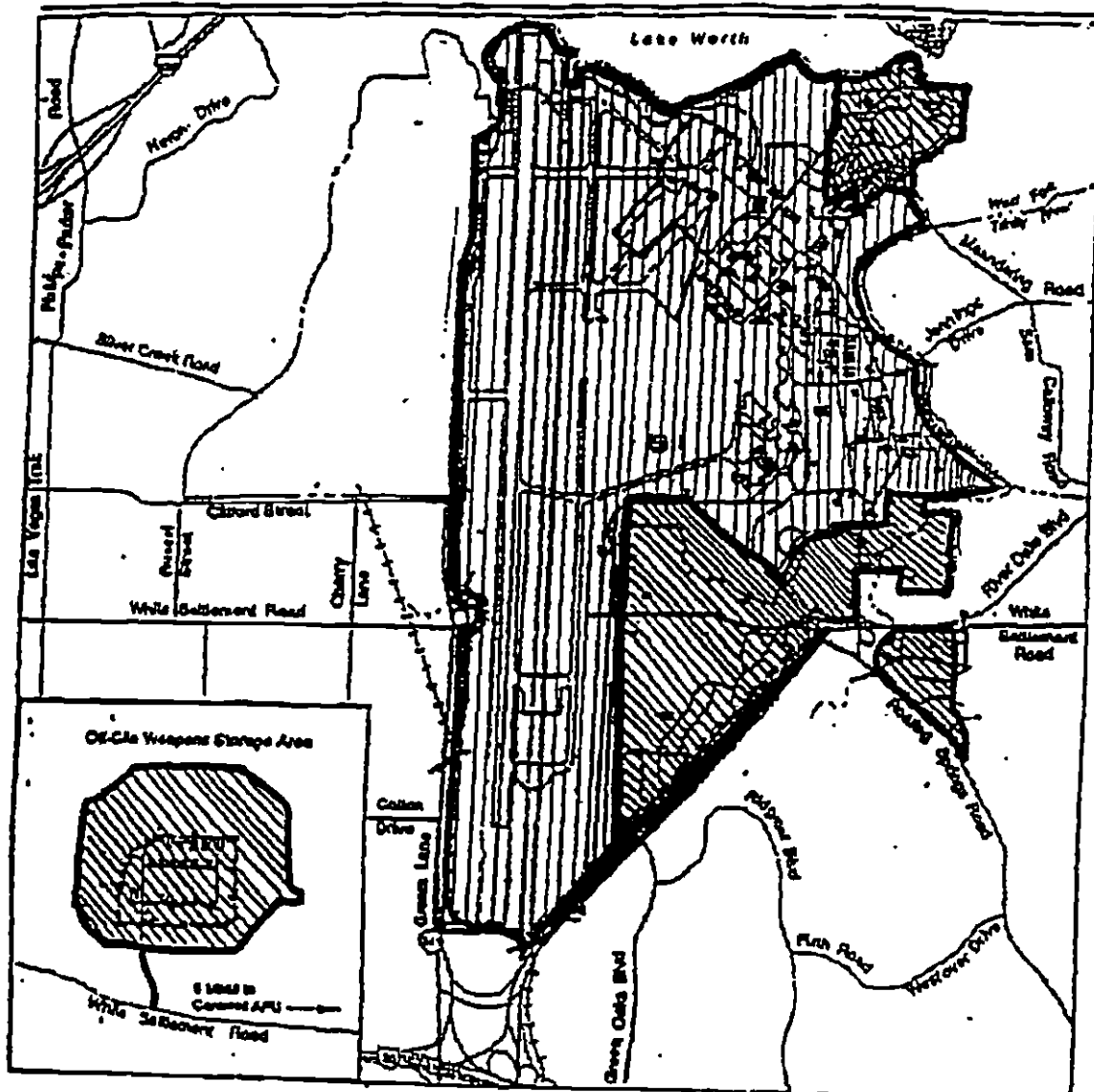
*Michael B. Donley*  
MICHAEL B. DONLEY  
Acting Secretary of the Air Force

08 JUN 1993

BEST AVAILABLE  
COPY

715 140

NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE  
(FORMER CARSWELL AIR FORCE BASE, TEXAS)



Proposed NAS Ft Worth Joint Reserve Base Cantonment Area



BRAC Area

**BEST AVAILABLE  
COPY**

715 141

**MEMORANDUM OF UNDERSTANDING (MOU)  
BETWEEN THE UNITED STATES AIR FORCE (USAF)  
AND THE UNITED STATES NAVY (USN)  
ON THE TRANSFER OF RESPONSIBILITY FOR CARSWELL AIR FORCE BASE**

A Memorandum of Understanding (MOU) was signed by the acting Secretaries of the Air Force and Navy on 8 and 9 Jan 93 outlining the general terms under which the Air Force would transfer responsibility for Carswell Air Force Base (AFB) and the final target date of 30 September 1994 for the transfer of most responsibilities from the Air Force to the Navy.

The purpose of this document is to amend the above referenced 9 Jun 93 MOU transferring Carswell AFB from the Air Force to the Navy, to allow for the continuation of certain contract and caretaker cooperative agreement responsibilities for essential base support by the Air Force until the Navy can assume these responsibilities. Continued Air Force funding and administration of these essential base support contracts during the transition period will ensure the smooth transfer of Carswell AFB from the Air Force to the Navy without loss of operational capability or needed base services. The Air Force agrees to continue funding of the essential base contracts/caretaker support listed at attachment 1 until the Navy assumes these responsibilities, or October 1, 1995, whichever occurs first.

The Navy will assume host responsibilities at Carswell AFB on 1 October 1994, at which time the base will be recognized as Naval Air Station Fort Worth, Joint Reserve Base, Carswell Field (NAS Fort Worth). The Air Force will transfer all property within the DoD boundary area known as NAS Fort Worth to the Navy. The map at attachment 2 depicts the area to be transferred from the Air Force to the Navy. Also depicted on the map is an area to be permitted back to the Air Force for use by the Air Force Reserve (AFRES) and the Texas Air National Guard (TANG). The exact delineation of joint airfield activities within the permitted area and the use of other facilities by the AFRES and the TANG in the joint use area of NAS Fort Worth will be as agreed to locally and documented through local support agreements.

The Air Force accepts the responsibility for final remediation of all environmental conditions requiring action which are attributable to past Carswell AFB operations prior to 1 Oct 94. Prior to 1 Oct 95, the Air Force and Navy shall agree to final environmental program management responsibilities for these past conditions with the following goals:

(1) The Air Force and the Navy mutually agree to a set amount of funds required for final remediation of environmental compliance conditions. The Air Force will transfer the agreed funding amount to the Navy along with all environmental program management responsibilities.

(2) The Air Force and the Navy will continue to explore options for final remediation of environmental installation

**BEST AVAILABLE  
COPY**

715 142


restoration conditions with an objective of a final decision on Air Force and Navy long term program management and funding responsibilities. Should an agreement not be reached by 1 Oct 95, the Air Force will retain environmental restoration program responsibilities, to include funding, until final remediation.

During the Navy's NAS Dallas to NAS Fort Worth transition period, the Commanding Officer, NAS Dallas will provide host oversight of NAS Fort Worth through the employment of a Navy Captain (06) as a site commander.

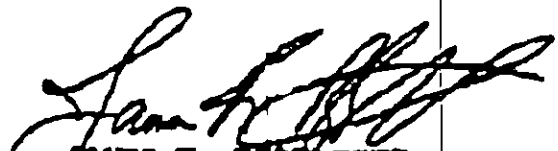
The AFRES civilian personnel billets excess to the 301st Fighter Wing (FW) and required by the Navy to support host functions as NAS Fort Worth, may be employed by the Navy beginning 1 October 1994. Reduction in force actions will be determined in accordance with appropriate civilian personnel regulations.

Identification of the specific support functions which will become the responsibility of the Navy as host of NAS Fort Worth will be based on applicable interservice support directives and policy decided at the local level.

The Navy and Air Force will continue to work cooperatively in the development of local support agreements which ensure continuity and full satisfaction of support requirements for all affected activities in Fiscal Year 1995 and beyond

  
PATRICK W. DAMERON, RADM, CEC, USN  
Director, Facilities and Engineering  
Division (N44)  
Office of the Chief of Naval  
Operations

9/23/94

  
JAMES F. EDGERTON  
Deputy Assistant Secretary  
of the Air Force  
(Installations)

9/23/94

Attachments:  
Contract listings  
Map



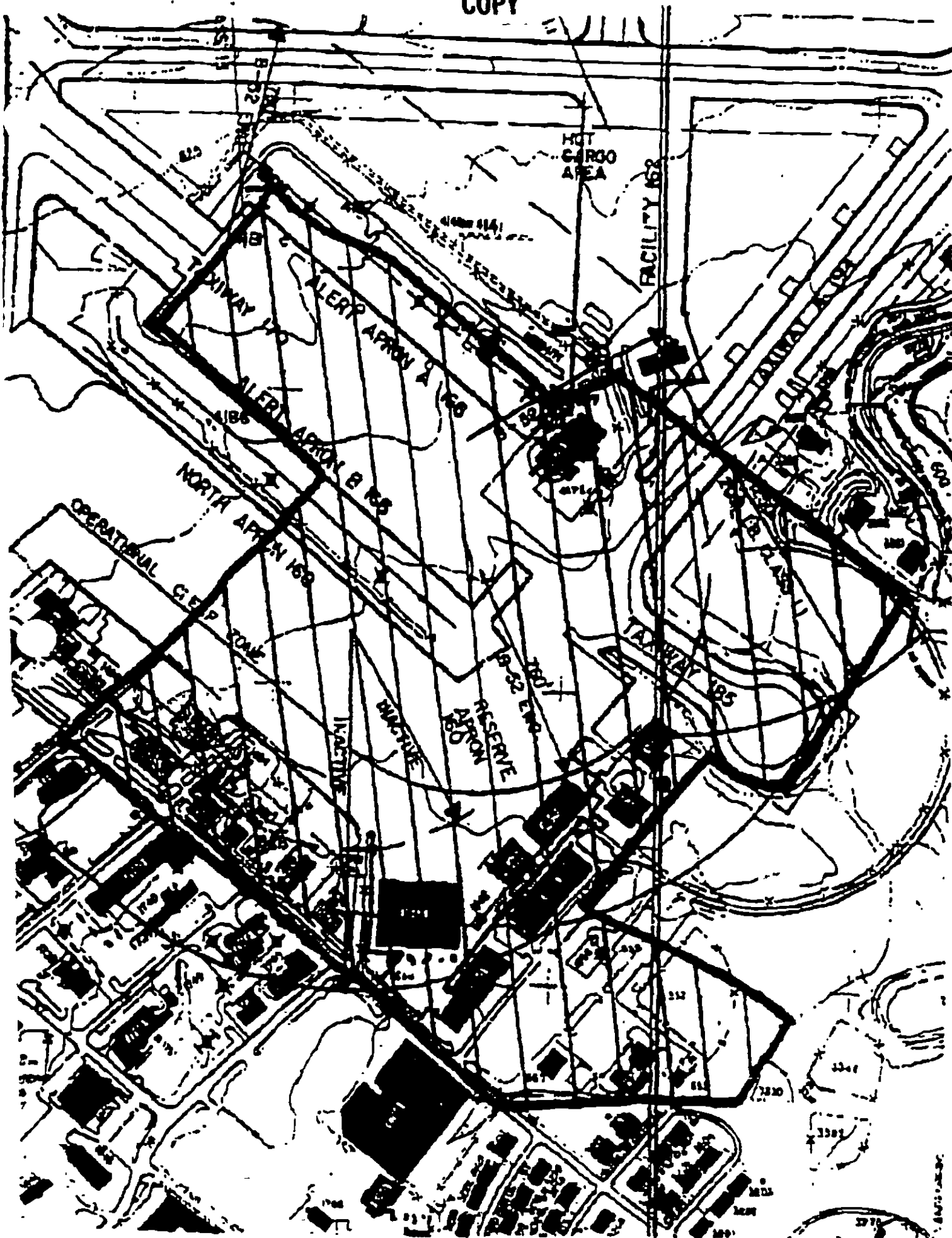
**CONTINUING AIR FORCE CONTRACTS**

**Category I:** Contracts managed and paid by AFBCA from 1 Oct 94 to 1 Oct 95.

<b><u>Function</u></b>	<b><u>Cost (\$K)</u></b>
Building Maintenance	255
Electrical System Maintenance	86
Water/Waste Water System Maintenance	99
Heating and A/C System Maintenance	66
Natural Gas System Maintenance	84
Cathodic Protection System Maintenance	21
Fire Protection System Maintenance	40
Airfield Lighting Maintenance	81
Environmental Permit	2
Hazardous Waste Management	1
Spill Prevention and Response	1
UST Monitoring	1
Storm Water Runoff Monitoring	10
Oil/Water Separator Maintenance	16
Laboratory Sampling and Analysis	8
Potable Water Monitoring	20
Disaster Response	4
Road, Street, Parking Lot Maintenance	45
Airfield Pavement Maintenance	105
<b>Total AFBCA Expense</b>	<b>945</b>

**Category II:** Support contracts managed and paid by AFRES from 1 Oct 94 to 1 Oct 95

<b><u>Function</u></b>	<b><u>Cost (\$K)</u></b>
Transient Alert Contract	300
Telephone Switch Contract	324
Telephone Cable Plant Contract	188
<b>Total AFRES Expense</b>	<b>782</b>
<b>Total Category I and II Air Force Expense</b>	<b>\$1,727K</b>





Office of the Assistant Secretary

FEB 26 1996

MEMORANDUM FOR Deputy Assistant Secretary of the Navy  
(Environment and Safety)

FROM: SAF/MIQ

SUBJECT: Carswell/Fort Worth Environmental Cleanup (Your memo, same subject, 8 Feb 96)

The Air Force intends to meet its requirements as stated in the Memorandum of Understanding (MOU) between the Navy and the Air Force entitled "Transfer of Responsibility for Carswell Air Force Base" that was signed on 23 Sep 94.

As no agreement could be reached by the 1 Oct 95 deadline, we will assume both funding and management responsibilities for the cleanup of contamination at the former Carswell Air Force Base attributable to Air Force operations prior to 1 Oct 94. My intention is that this program be strictly developed and executed within the Air Force allocation under the Defense Environmental Restoration Program using the Defense Environmental Restoration Account or any subsequent cleanup program.

THOMAS W. L. MCCALL  
Deputy Assistant Secretary of the Air Force  
(Environment, Safety and Occupational Health)

cc:  
SAF/GCN  
AFBCA/DR  
AF/CEV

**MEMORANDUM OF UNDERSTANDING FOR ENVIRONMENTAL CLEANUP  
OF NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE,  
CARSWELL FIELD**

19 June 1996

**1. PARTIES TO THIS AGREEMENT**

Headquarters United States Air Force - HQ USAF/~~CEV~~  
Air Force Base Conversion Agency - AFBCA  
Headquarters Air Force Center for Environmental Excellence - HQ AFCEE/ER  
Headquarters Air Force Materiel Command - HQ AFMC/CEV  
Headquarters Air Force Reserve - HQ AFRES/CEV  
Naval Air Station Fort Worth Joint Reserve Base - Environmental Office  
Naval Facilities Engineering Command - NAVFACENGCOM

**2. BACKGROUND**

On 8 and 9 June 1993, the Air Force and Navy signed a Memorandum of Understanding (MOU) (Attachment 1) outlining the general terms for the transfer of the former Carswell Air Force Base from the Air Force to the Navy. The parties amended the MOU on 23 September 1994 (Attachment 2). One objective of the amended MOU was that the Air Force and the Navy work toward agreement on long-term program management and funding responsibilities for the Carswell AFB restoration program. The amended MOU specified that unless the Air Force and Navy could reach agreement on joint cleanup of the installation, the Air Force would 'retain environmental restoration program responsibilities, to include funding, until final remediation.'" The Air Force and Navy were unable to reach such agreement. In a letter to the Deputy Assistant Secretary of the Navy dated 26 Feb 1996 (Attachment 3), Mr. Thomas McCall (SAF/MIQ) confirmed that the Air Force "will assume both funding and management responsibilities for the cleanup of contamination at the former Carswell AFB attributable to Air Force operations prior to 1 Oct 94." As such, SAF/GC specified that BRAC funds could not legitimately be used for environmental cleanup for these areas at the former Carswell AFB that may remain active. HQ USAF/CEV has assumed responsibility for management of the cleanup program at Carswell AFB within the Air Force allocation under the Defense Environmental Restoration Program (DERP) using the Defense Environmental Restoration Account (DERA). HQ USAF/CEV has chosen HQ AFCEE/ER to act as Major Command (MAJCOM) and sole service center for execution of the program.

The parties to this agreement have specific responsibility for cleanup of areas in and around the Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB), Carswell Field (formerly Carswell AFB). HQ USAF/CEV has responsibility for cleanup of sites within the boundaries of NAS Fort Worth JRB. AFBCA has responsibility for cleanup of sites outside the boundaries of NAS Fort Worth JRB. HQ AFMC/CEV has responsibility for

cleanup of Air Force Plant 4. It is the intent of this MOU to meld the various Air Force cleanup strategies into a single, coordinated Air Force program.

### **3. PURPOSE**

The purpose of this MOU is to specify the working relationship among all DoD parties involved in conducting the Installation Restoration Program (IRP) at NAS Fort Worth JRB. This MOU establishes the roles and responsibilities of each organization for managing all IRP projects at NAS Fort Worth JRB.

This agreement is limited to roles and responsibilities related to environmental cleanup. As such, it does not delineate the Air Force, Navy, or tenant obligations to maintain ongoing environmental compliance for NAS Fort Worth JRB.

**4. ROLES AND RESPONSIBILITIES** The following responsibilities are agreed to by the parties as they apply to IRP efforts at NAS Fort Worth JRB.

**a. HQ USAF/CEV** HQ USAF/CEV will provide funding to HQ AFCEE/ER for sites which require investigation or cleanup contaminated prior to 1 October 1994 which are listed in Appendix A, Listing of Sites and Areas of Concern. HQ USAF/CEV will provide funding for those sites listed in the appendix as "DERA" (which meet the DERA eligibility requirement of being contaminated prior to January 1984). For contamination within NAS Fort Worth JRB whose source is located outside NAS Fort Worth JRB, HQ USAF/CEV will seek an arrangement with the responsible or potentially responsible party, be it a party to this agreement or not, for an equitable division of funding and program responsibility for the contamination. Non-DERA-eligible sites (those sites contaminated after January 1984 and prior to 1 October 1994) will require other sources of Air Force funding. Currently all sites are believed to be DERA-eligible.

HQ USAF/CEV will also provide funding for manpower, Restoration Advisory Board (RAB) support, Management Action/Community Relation plan revisions and training as necessary to effect an efficient program. Funding will be distributed in accordance with the regulations and DERA program guidance (or subsequent program guidance) in effect at the time funding is provided. HQ USAF/CEV will also provide sufficient guidance to HQ AFCEE/ER for the proper execution of the program.

**b. AFBCA** AFBCA holds the corporate knowledge for the NAS Fort Worth JRB Base Realignment and Closure (BRAC) program. AFBCA will continue to manage the cleanup of sites outside NAS Fort Worth JRB. The sites are listed in Appendix A as "BRAC." For those sites within the area of NAS Fort Worth JRB, AFBCA will act in a support capacity to HQ AFCEE/ER and HQ USAF/CEV since the responsibility for cleanup of the majority of sites now rests with HQ USAF/CEV. AFBCA, through the BEC and Site Manager, will do the following:

1) Provide HQ AFCEE/ER with historical, programming and related documents and electronic files to facilitate a smooth transition of the IRP program. All records, reports and other IRP documentation relating to the NAS Fort Worth JRB shall be transferred to HQ AFCEE/ER as of 1 Oct 96. The local AFBCA office will provide other parties to this MOU with electronic data and reports relating to the investigation and/or cleanup of BRAC sites as they are produced if AFBCA is requested to do so.

2) Coordinate BRAC regulatory and public meetings with other parties to this MOU.

3) Coordinate BRAC investigative and/or cleanup activities having an impact on Navy activities, 301 Fighter Wing (FW) activities, the NAS Fort Worth JRB IRP or Air Force Plant 4 IRP.

4) Allow the Air Force and its IRP contractors to operate under permits which remain under the control of the local AFBCA office provided permit requirements are met. The local AFBCA office maintains a RCRA storage permit, a National Pollution Discharge Elimination System (NPDES) permit and a sanitary sewer discharge permit, among others.

5) Allow the Air Force and its IRP contractors the use of government equipment, property and office space under the control of AFBCA so that government cost-savings can be realized.

6) Coordinate BRAC projects with other parties to this MOU so that government resources are conserved. A goal of frequent communication shall be established to ensure a good working relationship with other parties to this MOU.

c. HQ AFCEE/ER HQ AFCEE/ER will act as MAJCOM and Service Center for the NAS Fort Worth JRB IRP and as such will assume the following responsibilities:

#### 1) MAJCOM RESPONSIBILITIES

a) Appoint a Remedial Program Manager (RPM) in writing to execute all phases of the IRP for HQ USAF/CEV's sites.

b) Coordinate the NAS Fort Worth JRB IRP with regulatory agencies, the restoration advisory board (RAB) and other parties to this MOU.

c) Schedule, budget and set program resource priorities as well as establish project goals and completion schedules.

## **2) RPM RESPONSIBILITIES**

a) Execute the IRP strategy contained in the Management Action Plan and other execution plans. Load historical IRP data into HQ AFCEE's Installation Restoration Management Program Management System (IRPIMS) database as appropriate.

b) Ensure that the IRP complies with all applicable laws and regulations. Identifies cleanup criteria and accomplishes tasks in accordance with regulatory agreements.

c) Assume final approval authority as NAS Fort Worth JRB RPM on all technical matters for the NAS Fort Worth JRB IRP.

d) Coordinate IRP regulatory and public meetings with other parties to this MOU.

e) Maintain, as of 1 Oct 96, both the Administrative Record (AR) and the Information Repository (IR) for the NAS Fort Worth JRB IRP and former Carswell AFB (BRAC) programs. This is because the DERA program will be producing the bulk of AR/IR documentation in the future. The AFBCA local office will provide HQ AFCEE/ER with documents and electronic files for inclusion in the AR/IR as they are produced. HQ AFCEE/ER will provide other parties to this MOU with electronic data and reports relating to the investigation and/or cleanup of NAS Fort Worth JRB IRP sites as they are produced if HQ AFCEE/ER is requested to do so.

f) Coordinate IRP investigative and/or cleanup activities having an impact on Navy operations, 301 FW operations, former Carswell AFB (BRAC) sites or Air Force Plant 4 sites.

g) Coordinate IRP projects beneficial to other parties to this MOU so that government resources are conserved. A goal of frequent communication shall be established to ensure a good working relationship with other parties to this MOU.

## **3) SERVICE CENTER RESPONSIBILITIES**

a) Provide technical, legal, contracting and contract management support for the NAS Fort Worth JRB IRP.

b) Act as Air Force Contracting Officer's Representative (COR) for all IRP delivery orders. The RPM will develop IRP requirements and award and execute delivery orders with the assistance of HQ HSC/PKVB. The RPM will ensure that day-to-day operations by contractors are performed within the scope of work (SOW).

c) Provide oversight and technical direction of IRP field activities.

**d. HQ AFMC/CEV** Air Force Plant 4 contains a TCE plume site. Remediation of this plume and any other plume attributable to Air Force Plant 4 operations may impact the NAS Fort Worth JRB IRP and BRAC programs. The Air Force should strive to avoid duplication of program requirements and lessons learned. Therefore HQ AFMC/CEV will assume the following responsibilities:

- 1) Coordinate Air Force Plant 4 regulatory and public meetings with other parties to this MOU.
- 2) Coordinate Air Force Plant 4 investigative and/or cleanup activities having an impact on Navy activities, 301 FW activities, the NAS Fort Worth JRB IRP or former Carswell AFB (BRAC) program.
- 3) Provide other parties to this MOU with electronic data and reports relating to the investigation and/or cleanup of Air Force Plant 4 sites as they are produced if HQ AFMC/CEV is requested to do so.
- 4) Coordinate Air Force Plant 4 projects beneficial to other parties to this MOU so that government resources are conserved. A goal of frequent communication shall be established to ensure a good working relationship with other parties to this MOU.

**e. NAS Fort Worth JRB** The Navy will assume the responsibility of the following aspects of the NAS Fort Worth JRB IRP:

- 1) Restore all sites contaminated after 1 Oct 94 attributable to Navy operations on NAS Fort Worth JRB property.
- 2) Provide all contractor logistical support as documented in Interservice Support Agreements (base support letters) that are applicable to specific HQ AFCEE/ER IRP and BRAC delivery orders. The Navy shall also allow the Air Force and its IRP contractors to operate under permits which will eventually be under the control of NAS Fort Worth JRB provided permit requirements are met. The NAS Fort Worth JRB Public Works Officer and Resident Officer in Charge of Construction (ROICC) will coordinate with the HQ AFCEE/ER RPM on activities such as Navy construction which may use or disturb any NAS Fort Worth JRB IRP site.
- 3) Communicate frequently information on Navy projects pertinent to the NAS Fort Worth JRB IRP, BRAC or Air Force Plant 4 programs.
- 4) The Navy currently does not administer a cleanup program. In the event they do become responsible for any sites, the Navy shall provide other parties to this MOU with electronic data and reports relating to the investigation and/or cleanup of sites as they are produced if the Navy is requested to do so.



5) NAVFACENGCOM will participate and be involved to the extent required with installation restoration planning, programming and execution to support the NAS Fort Worth JRB IRP.

**f. 301 Fighter Wing** The 301 FW (Air Force Reserve) will assume the responsibility of the following aspects of the NAS Fort Worth JRB IRP:

1) Provide all contractor logistical support as documented in base support letters that are applicable to specific HQ AFCEE/ER IRP and BRAC delivery orders. Generally this includes, if available, providing access to potable water, access to electrical hook-ups, providing parking for contractor work trailers, providing vehicle and personal passes, and clearing drilling locations. The 301 FW civil engineering office will coordinate with the HQ AFCEE/ER RPM on activities such as Air Force construction which may use or disturb any NAS Fort Worth JRB IRP site.

2) Communicate when necessary on 301 FW projects pertinent to the goals of or which may impact the NAS Fort Worth JRB IRP or BRAC or Air Force Plant 4 programs. A goal of frequent communication shall be established to ensure a good working relationship with other parties to this MOU.

3) Provide other parties to this MOU with electronic data and reports relating to the investigation and/or cleanup of NAS Fort Worth JRB sites as they are produced if the 301 FW is requested to do so.

4) Provide facilities on base for HQ AFCEE/ER staff on an as-needed basis.

**5. COMMUNICATION** Communication is critical to the success of any program. The parties to this MOU pledge themselves to full and open communication. In addition to specific entries under section 4, the following initiatives will be undertaken as part of this MOU:

a) RPMs will combine the RABs for Air Force Plant 4, NAS Fort Worth JRB IRP and former Carswell AFB (BRAC). Specific program elements will be discussed separately, but the same community members should be invited. The responsibility for government co-chairperson will rotate each meeting between Air Force Plant 4, NAS Fort Worth JRB and the former Carswell AFB (BRAC).

b) RPM meetings for NAS Fort Worth JRB IRP, Air Force Plant 4 IRP and former Carswell AFB (BRAC) programs will be scheduled as closely together as possible (preferably on the same day) to facilitate communication with regulators common to both programs.

c) All parties to this MOU are invited to attend any regularly-scheduled regulatory or RAB meetings in order to keep abreast of program developments. Adequate

notification of scheduled meetings shall be provided and meeting minutes shall be distributed to all parties to this agreement.

d) All parties to this MOU should strive to hold frequent management meetings to keep each other abreast of developments in or impacts to the NAS Fort Worth JRB IRP, and to discuss program execution.

e) Semi-annual coordination meetings shall be held by HQ AFMC/CEV, AFBCA and HQ AFCEE/ER. The purpose of the meetings shall be to review current and planned projects for Air Force Plant 4, NAS Fort Worth JRB and former Carswell AFB (BRAC) programs. Attendance at the meetings shall be limited to the Air Force Plant 4 RPM, the NAS Fort Worth JRB RPM, and AFBCA's on-site manager.

**6. DURATION OF AGREEMENT** This agreement will remain in effect unless terminated sooner by mutual consent of the parties.

**7. CHANGES** The parties will make changes to this agreement only by mutual consent.

---

Robert Wallett, Colonel (s), USAF  
HQ USAF/CEV

---

Albert F. Lowas, Jr.  
Acting Director  
Air Force Base Conversion Agency

---

Steven Boyce, LT COL, USAF  
HQ AFCEE/ER

---

Jeff Munday  
HQ AFMC/CEVR

---

Bob Efferson, Colonel, USAFR  
Commander  
301st FW

---

Dale Williams, Lt. Colonel, USAF  
HQ AFRES/CEV



715 159

---

Captain J. D. Cannon, USN  
Commanding Officer  
NAS Ft. Worth JRB

---

Captain L.P. Scullion, CEC, USN  
Commanding Officer  
Southern Division  
Naval Facilities Engineering Command

APPENDIX A  
LISTING OF SITES AND AREAS OF CONCERN

SMWU	Name	IRP Site	Previous/Current Phase	Phase Complete	BRAC/DERA	OPR
	1) Pathological Waste Incinerator		RFI	NFA	BRAC	AFBCA
	2) Pathological Waste Storage Shed		RFI	NFA	BRAC	AFBCA
	3) Metal Can		RFI	NFA	BRAC	AFBCA
	4) Facility Dumpsters		RFI	NFA	BRAC	AFBCA
	5) B1628 Waste Accumulation Area				DERA	AFCEE
	6) B1628 Wash Rack and Drain				DERA	AFCEE
	7) B1628 O/W Separator				DERA	AFCEE
	8) B1628 Sludge Collection Tank				DERA	AFCEE
	9) B1628 Work Station Waste Accumulation Area			NFA	DERA	AFCEE
	10) B1617 Work Station Waste Accumulation Area			NFA	DERA	AFCEE
	11) B1617 Waste Accumulation Area				DERA	AFCEE
	12) B1618 Waste Accumulation Area				DERA	AFCEE
	13) B1710 Waste Accumulation Area				DERA	AFCEE
	14) B1060 Bead Blaster Collection Tray			NFA	DERA	AFCEE
	15) B1060 Paint Booth Vault			NFA	DERA	AFCEE
	16) B1060 Exits Accumulation Area				DERA	AFCEE
	17) Landfill 7	LF-07			DERA	AFCEE
	18) Fire Training Area 1	FT-08	PA/SI, RJ 1989	NFA	BRAC	AFBCA
	19) Fire Training Area 2	FT-09	PA/SI, RJ/FS, RA, ROD	Closing under TNRCC RRS 2	DERA	AFCEE
	20) Waste Fuel Storage Tank	FT-09	PA/SI, RJ/FS, RA, ROD		DERA	AFCEE
	21) Waste Oil Tank	FT-09	PA/SI, RJ/FS, RA, ROD		DERA	AFCEE
	22) Landfill 4	LF-04	PA, SI, RJ/FS 1989, Limited RFI, RD planned 3rd quarter FY96		BRAC	AFBCA
	23) Landfill 5	LF-05	PA, SI, RJ/FS 1989		BRAC	AFBCA
	24) Waste Bursi Area	WP-07	PA/SA, RJ/FS, IRA Aug 1991		BRAC	AFBCA
	25) Landfill 8 West	LF-08			DERA	AFCEE
	26) Landfill 3	LF-03	PA, SI 1988		DERA	AFCEE
	27) Landfill 10				DERA	AFCEE
	28) Landfill 1	LF-01	PA, SI		DERA	AFCEE
	29) Landfill 2	LF-02	PA, SI 1988		DERA	AFCEE
	30) Landfill 9	LF-09			DERA	AFCEE
	31) B1050 Waste Accumulation Area				DERA	AFCEE
	32) B1410 Waste Accumulation Area				DERA	AFCEE
	33) B1420 Waste Accumulation Area				DERA	AFCEE
	34) B1194 Waste Accumulation Area				DERA	AFCEE
	35) B1194 Vehicle Refueling Shop O/W Separation System				DERA	AFCEE
	36) B1191 Waste Accumulation Area				DERA	AFCEE
	37) B1191 Vehicle Maintenance Shop O/W Separator				DERA	AFCEE
	38) B1269 PCB Transformer Building			NFA	DERA	AFCEE
	39) B1643 Waste Accumulation Area				DERA	AFCEE
	40) B1543 O/W Separation System		TNRCC Review for NFA, pending Background Study		DERA	AFCEE
	41) B1414 O/W Separation System		TNRCC Review for NFA, pending Background Study		DERA	AFCEE
	41) Aerospace Ground Equipment				DERA	AFCEE

APPENDIX A  
LISTING OF SITES AND AREAS OF CONCERN

SMWU	Name	IRP Site	Previous/Current Phase	Phase Complete	BRAC/DERA	OPR
42	B1414 Waste Accumulation Area				DERA	AFCEE
43	B1414 Non-Destructive Inspection (NDI) Waste Accumulation Area			NFA	DERA	AFCEE
44	B1027 O/W Separation System at the Aircraft Washing Hangar		TNRCC Review for NFA, pending Background Study		DERA	AFCEE
45	B1027 Waste Oil Tank Vault at the Aircraft Washing Hangar				DERA	AFCEE
46	B1027 Waste Accumulation Area			NFA	DERA	AFCEE
47	B1015 Jet Engine Test Cell O/W Separator				DERA	AFCEE
48	B1048 Fuel System Floor Drains			NFA	DERA	AFCEE
49	Aircraft Washing Area No. 1				DERA	AFCEE
50	Aircraft Washing Area No. 2				DERA	AFCEE
51	B1190 Central Waste Holding Area				DERA	AFCEE
52	B1190 O/W Separation System		TNRCC Review for NFA, pending Background Study		DERA	AFCEE
53	Storm Water Drainage System	SD-10	PA/SI, R/FS, RA, ROD		DERA	AFCEE
54	Storm Water Interceptors				DERA	AFCEE
55	East Gate Oil Water Separator				DERA	AFCEE
56	B1405 Waste Accumulation Area			NFA	DERA	AFCEE
57	B1432/1434 Waste Accumulation Area			NFA	DERA	AFCEE
58	Pesticide House Area	WP-11	PA/SI, RI		BRAC	AFBCA
59	B8503 WSA Waste Accumulation Area	OT-15			BRAC	AFBCA
60	B8503 Radioactive Waste Burial Site	OT-15	PA/SI, R/FS, IRA Ongoing 1996		BRAC	AFBCA
61	B1320 Power Production Maintenance Facility Waste Accumulation Area		Verify this site is DERA		DERA	AFCEE
62	Landfill 6	LF-06	PA/SI, R/FS 1994		DERA	AFCEE
63	Entomology Dry Well	OT-12	PA/SI, R/FS	NFA	DERA	AFCEE
64	French Underdrain System	SD-13	PA/SI, R/FS 1994, RA 1996	Closing under TNRCC RRS	DERA	AFCEE
65	WSA Deposal Site	OT-16	PA/SI, R/FS 1987	NFA	BRAC	AFBCA
66	Sanitary Sewer System				BRAC/DERA	AFBCA/AFCEE
67	B1340 O/W Separator	SD-13	TNRCC Review for NFA, pending Background Study		DERA	AFCEE
68	POL Tank Farm	ST-14	PA/SI, RD/RA Treatability Study Ongoing	Closing under TNRCC RRS	DERA	AFCEE
AOC 1	B1518 Service Station	ST-16	PA/SA, R/FS, Limited RFI RAP Ongoing 1996		DERA	AFCEE
AOC 2	Airfield Groundwater Plume	OT-18	PA/SI		DERA	AFCEE
AOC 3	Waste Oil Dump	DP-17	PA/SI	NFA	DERA	AFCEE
AOC 4	Fuel Hydrant System		RA Dec 1995		DERA	AFCEE
AOC 5	Grounds Maintenance Yard		RFI 1996		BRAC	AFBCA
AOC 6	RV Storage Area		RFI Ongoing		DERA	AFCEE
AOC 7	Base Refueling Area		Need to verify what this is		DERA	AFCEE
AOC 8	SW Aerospace Museum		RFI 1996		BRAC	AFBCA
AOC 9	Golf Course Maintenance Yard		RA 1996		BRAC	AFBCA

**APPENDIX A  
LISTING OF SITES AND AREAS OF CONCERN**

SMYU	Name	IRP Site	Previous/Current Phase	Phase Complete	BRAC/DERA	OPR
AOC 10	B1064 O/W Separator		TNRCC Review for NFA, pending Background Study		DERA	AFCEE
AOC 11	B1060 O/W Separator		TNRCC Review for NFA, pending Background Study		DERA	AFCEE
AOC 12	B4210 O/W Separator		TNRCC Review for NFA, pending Background Study		DERA	AFCEE
AOC 13	B1145 O/W Separator		TNRCC Review for NFA, pending Background Study		DERA	AFCEE
AOC 14	Unnamed Stream	SD-13	PA, SI, R/FB 1994, RFI 1996, RA planned 3rd quarter FY96		BRAC	AFBCA
AOC 15	B1190 Storage Shed				DERA	AFCEE
AOC 16	East Area GW	East Area GW	PA/SI		DERA	AFCEE
AOC 17	Farm Camp		PA/SI		BRAC	AFBCA
AOC 18	Landfill 8 (Golf Course Area) East	LF-08	Investigate for connection with Landfill 8 West		BRAC	AFBCA

**Carswell AFB Underground Storage Tanks**

**Active Tanks**

Tank ID	Facility	Install	Gallons	Substance	Registered	Site Status	Comments	Navy/Air Force
1015-1	Eng Test Cell	1967	3000	JP-4	Yes		Upgraded 4-96	Navy
1027-0	Oil/Water Separator		3000	OW	No	SWMU 44.45	Oil/Water Separator, Not a Tank!	Navy
1050-1	A/C Maint Hangar	1982	15000	Heating Oil	No		Exempt	Navy
1084-1	Vehicle Fueling Station	1988	10000	Diesel	Yes			Navy
1064-2	Vehicle Fueling Station	1988	10000	Diesel	Yes			Navy
1064-3	Vehicle Fueling Station	1988	10000	Mogas	Yes			Navy
1064-4	Vehicle Fueling Station	1988	10000	Mogas	Yes			Navy
1145-1	Auto Hobby Shop	1990	1000	OW	No			Navy
1170-1	POL Pump Station	1961	2000	OW	Yes	ST-13, ST-14	Should be 1168-1	Navy
1170-2	POL Pump Station	1961	2000	OW	Yes	ST-13, ST-14	Should 1169-1	Navy
1191-2	Vehicle Maint Shop	1983	500	OW	Yes		Conditionally exempt	Navy (AFRES)
1194-1	Refueling Maint Shop	1983	2000	OW	Yes		Conditionally exempt	Navy (AFRES)
1420-1	AGE Shop	1983	2000	Heating Oil	No		Exempt	Navy
1423-1	Air Freight Terminal	1985	500	OW	No			Navy
1425-1	Fire Station	1955	1000	Diesel	Yes			Navy
1628-4	Oil/Water Separator	1981	1000	OW	Yes		Conditionally exempt	Navy (AFRES)
1643-1	301 A/C Maint Hangar	1982	8500	Heating Oil	No		Exempt	AF (AFRES)
1655-1	301 A/C Maint Shop	1991	550	OW	Yes		Conditionally exempt	Navy (AFRES)
1656-1	301 A/C Maint Dock	1991	1000	N-Hydrazine	No			AF (AFRES)
3000-1	Hospital DEG	1985	15000	Diesel	Yes			AF (AFBCA)
3000-2	Hospital DEG	1985	15000	Diesel	Yes			AF (AFBCA)
3001-1	Hospital Boiler Fac	1958	10000	Diesel	Yes		Upgraded 5/96	AF (AFBCA)
3001-2	Hospital Boiler Fac	1959	20000	Heating Oil	No		Exempt	AF (AFBCA)
3190-1	Youth Center	1980	2000	Heating Oil	No		Exempt	Navy
3359-1	Reserve Fire Team Fac	1979	2000	Diesel	Yes			Navy
3360-1	Electric Pwr Gen Plant	1978	5000	Diesel	Yes			Navy
4111-1	Electric Pwr Gen Plant	1979	500	Diesel	Yes		Upgraded 4/96	Navy
4127-1	Electric Pwr Gen Plant	1959	500	Diesel	Yes		Upgraded 4/96	Navy
4136-2	TACAN Station DEG	1991	300	Diesel	Yes		Upgraded 5/96	Navy
4141-1	Electric Pwr Gen Plant	1958	250	Diesel	Yes		Upgraded 4/96	Navy
4143-1	Comm Transmitter DEG	1984	500	Diesel	Yes		Upgraded 4/96	Navy
4145-1	Electric Pwr Gen Plant	1981	500	Diesel	Yes		Upgraded 4/96	Navy
4155-1	Airfield Lighting DEG	1955	1000	Diesel	Yes		Upgraded 4/96	Navy

Carswell AFB Undergr. Oil Storage Tanks

Active Tanks						
		1985	1000	O/W	No	Navy
4210-6	Missile Assy Shop	1985	1000	O/W	No	Navy
4215-1	Special Weps Shop	1985	2000	Heating Oil	No	Navy
4218-1	Electric Pwr Gen Plant	1983	5000	Diesel	Yes	Navy
						Exempt
						Upgraded 4/96

Facility	Installed	Gallons	Substance	Registered	Registered	Status	Contain	REMARKS
Boat House		500	Mogas ?	N	N	4		Removed 7/93
233	74	250	Butane	N	N	1	N	
234	93	500	Mogas	N	N	1	Y	Double Wall Tank
234	93	500	Diesel	N	N	1	Y	Double Wall Tank
262	89	250	Mogas	N	N	1	Y	Curb
262	89	250	Diesel	N	N	1	Y	Curb
262	74	250	Propane	N	N	3	N	Disconnected, not in service
262	74	250	Propane	N	N	3	N	Disconnected, not in service
262	79	250	Propane	N	N	3	N	Disconnected, not in service
1000	89	275	Diesel	N	N	2	N	
1002	84	250	Diesel	N	N	2	N	Inside Bldg
1002	84	250	Diesel	N	N	2	N	Inside Bldg
1002	84	250	Diesel	N	N	2	N	Inside Bldg
1002	84	250	Diesel	N	N	2	N	Inside Bldg
1015	68	5000	CO2	N	N	2	N	
1026	93	5000	LOX	N	N	1	Y	Double Wall Tank
1026	90	2000	LN2	N	N	1	Y	Double Wall Tank
1026	85	400	LN2	N	N	1	Y	Double Wall Tank
1026	85	400	LN2	N	N	1	Y	Double Wall Tank
1027	86	5000	Detergent	N	N	2	Y	MILL 87916
1027	86	8000	Heating oil	N	N	2	Y	
1040	94	500	Diesel	N	N	1	Y	Double Wall Tank
1050	83	55	Diesel	N	N	2	N	22 KW DEG
1058	86	750	JP-8	N	N	1	N	JP-8 reclaim trailer
1058	86	750	JP-8	N	N	1	N	JP-8 reclaim trailer
1062	86	25	Diesel	N	N	1	N	10 KW DEG
1082	89	75	Diesel	N	N	1	N	100 KW DEG
1156	53	840000	JP-8	N	N	1	Y	Dike
1167	54	840000	JP-8	N	N	1	Y	Dike
1159	85	4920000	JP-8	N	N	1	Y	Dike
1161	87	2000	AFF	N	N	1	N	Inside Bldg
1161	87	2000	AFF	N	N	1	N	Inside Bldg
1170	89	75	Diesel	N	N	1	N	100 KW DEG. loc near 1189
1194	87	275	Waste oil	N	N	1	Y	Sandbag containment
1202	80	250	Propane	N	N	1	N	
1202	93	55	Various	N	N	1	N	4 Drums on cradles
1212	93	55	Various	N	N	1	N	4 Drums on cradles
1215	83	25	Diesel	N	N	1	N	6 KW DEG
1256	55	5000	Mogas	Y	Y	4		Removed 2/94
1259	42	11580	Mogas	Y	Y	4		Removed 2/94
1261	42	11580	Mogas	Y	Y	4		Removed 2/94
1263	50	11580	Diesel	Y	Y	4		Removed 2/94
1264	75	11580	Mogas	Y	Y	4		Removed 2/94
1265	42	11580	Mogas	Y	Y	4		Removed 2/94
1320		55	Various oils	N	N	4		Removed (6 drums)
1320	95	55	Various	N	N	1		10 drums on cradles
1418	84	50	Diesel	N	N	1	N	5 KW DEG
1423	89	100	Diesel	N	N	1	N	30 KW DEG. Inside Bldg



Facility	Installed	Gallons	Substance	Regulated	Registered	Status	Contents	Remarks
1425	88	37	Diesel	N	N	1	N	150 KW DEG. Inside Bldg
1425	91	100	Diesel	N	N	1	N	175 KW DEG
1504	90	25	Diesel	N	N	1	N	10 KW DEG
1510	86	275	Diesel	N	N	1	N	100 KW DEG
1658	83	55	Diesel	N	N	1	N	15 KW DEG
1631a	94	500	Mogas	N	N	1	Y	Double Wall Tank
1631b	94	2000	Diesel	Y	Y	1	Y	Double Wall Tank
1631c	94	4000	JP-8	N	N	1	Y	Double Wall Tank
1720	89	300	Diesel	N	N	1	N	80 KW DEG
1730	83	275	Diesel	N	N	1	N	100 KW DEG
1750	86	110	Diesel	N	N	2	N	650 KW DEG, removed 1994
1750	86	110	Diesel	N	N	2	N	650 KW DEG, removed 1994
1765	85	25	Diesel	N	N	2	N	40 KW DEG
1807	N/A		Chlorine	N	N	2	N	Swim Pool, cov pod Cl bottl
3000	87	275	Diesel	N	N	1	Y	950 KW DEG, Inside Bldg
3000	87	275	Diesel	N	N	1	Y	950 KW DEG, Inside Bldg
3001a	95	2000	Diesel	Y		0		Double wall tank
3001b	95	4000	Mogas	Y		0		Double wall tank
3106	N/A		Chlorine	N	N	3	N	Swim Pool, cov pod Cl bottl
4101	Unk	500	Diesel	N	N	4		Removed
4114	90	6	Diesel	N	N	1	N	Air field arresting gear engin
4114	90	6	Diesel	N	N	1	N	Air field arresting gear engin
4120	90	6	Diesel	N	N	1	N	Air field arresting gear engin
4120	90	6	Diesel	N	N	1	N	Air field arresting gear engin
4141	83	25	Diesel	N	N	1	N	15 KW DEG, Inside Bldg
4141	83	25	Diesel	N	N	1	N	15 KW DEG, Inside Bldg
4146	92	2500	JP-8	N	N	1	Y	Trailer
4150	88	275	Diesel	N	N	2	N	150 KW DEG
4152	88	275	Diesel	N	N	2	N	150 KW DEG
4153	88	275	Diesel	N	N	2	N	150 KW DEG
4154	88	275	Diesel	N	N	2	N	150 KW DEG
4156	86	30	Diesel	N	N	1	N	200 KW DEG, Inside Bldg
4155	86	275	Diesel	N	N	1	N	150 KW DEG
4175	84	275	Diesel	N	N	2	N	135 KW DEG
4205	84	5000	CO2	N	N	2	N	
8503	89	1000	Propane	N	N	2	N	
8503	89	1000	Propane	N	N	2	N	

**NOTE:**

STATUS	1	Facility Active
	2	Facility Inactive
	3	Tank Disconnected, but still at facility
	4	Tank and/or facility removed

This list contains all above ground "Tanks" including LPG, CO2 and small dry tanks

# TAB

*APPENDIX B*

---

**APPENDIX B**  
**AFCEE PROJECTED COST TO COMPLETE**

# Cost to Complete (\$)

## NAS Ft. Worth

FY02 Through Finish

Site ID	FY02 to FY08	FY09 to Finish	Total
DP001 Waste Pile 7 (SWMU 24)	2,157,000	2,510,000	4,667,000
FT001 Fire Training Area 2 (SWMUs 19, 20, & 21)	2,085,000	100,000	2,185,000
LF001 Landfill 1 (SWMU 28)	275,000	80,000	355,000
LF002 Landfill 2 (SWMU 29)	100,000	40,000	140,000
LF004 Landfill 6 (SWMU 62)	291,000	0	291,000
ST004 Base Gas and Service Station (AOC 1)	1,258,000	480,000	1,738,000
LF005 Landfill 7 (SWMU 17)	515,000	0	515,000
LF007 Landfill 9 (SWMU 30)	190,000	0	190,000
LF008 Landfill 10 (SWMU 27)	300,000	0	300,000
LF009 Landfill 4 (SWMU 22)	2,006,000	2,590,000	4,596,000
Site Totals	9,177,000	5,800,000	14,977,000
AOC20	1,700,000	0	1,700,000
AOC Totals	1,700,000	0	1,700,000
Total Sites/AOCs	10,877,000	5,800,000	16,677,000
Management Costs	1,155,000	330,000	1,485,000
Total Cost to Complete	12,032,000	6,130,000	18,162,000

# TAB

*APPENDIX C*

---

**APPENDIX C**  
**INSTALLATION ENVIRONMENTAL RESTORATION**  
**DELIVERABLES**

**Table C.1**  
**Site Deliverables**

SWMU/AOC	Site ID	RFA (PR/VSD)	RFI (SI) or CMS (RI/FS)	IRA and/or CMI (RD/RA)	LTM or O&M	PCO or Closure
SWMU 1*	NA	X	X	X		X
SWMU 2*	NA	X	X	X		X
SWMU 3*	NA	X	X	X		X
SWMU 4*	NA	X	X	X		X
SWMU 5	SS002	X	@			
SWMU 6	SD016	X	@			
SWMU 7	SD000	X	X	X		X
SWMU 8	SD014	X	X	X		
SWMU 9	NA	X	X	X		X
SWMU 10	NA	X	X	X		X
SWMU 11	SS003	X	X	X		X
SWMU 12	SS004	X	X	@		
SWMU 13	SS005	X	X	X		X
SWMU 14	NA	X	X	X		X
SWMU 15	NA	X	X	X		X
SWMU 16	SS006	X	X	X		X
SWMU 17	LF005	X	X	@		
SWMU 18**	NA	X	X	X		X
SWMU 19	FT001	X	X	@		
SWMU 20	FT001	X	X	@		
SWMU 21	FT001	X	X	@		
SWMU 22*&	NA	X	X	X		X
SWMU 23**	NA	X	X	X		X
SWMU 24**	NA	X	@			
SWMU 25**&&&	LF006	X	X	X		X
SWMU 26	LF003	X	X			X
SWMU 27	LF008	X	X			X
SWMU 28	LF001	X	X	@		
SWMU 29	LF002	X	X	@		
SWMU 30	LF007	X	X	@		
SWMU 31	SS007	X	X	@		
SWMU 32	SS008	X	X	X		X
SWMU 33	SS009	X	X	X		X
SWMU 34	SS010	X	X	X		X
SWMU 35	SD002	X	X	X		@
SWMU 36	SS011	X	X	X		X
SWMU 37	SD003	X	X	X		@
SWMU 38	NA	X	X	X		X
SWMU 39	SS012	X	X	X		X
SWMU 40	SD004	X	X	X		@
SWMU 41	SD005	X	X	X		@
SWMU 42	SS012	X	X	X		X
SWMU 43	NA	X	X	X		X
SWMU 44	SD006	X	X	X		@
SWMU 45	SD015	X	X	X		X

## Final MAP – NAS Fort Worth JRB

SWMU/AOC	Site ID	RFA (PR/VSI)	RFI (SI) or CMS (RI/FS)	IRA and/or CMI (RD/RA)	LTM or O&M	PCO or Closure
SWMU 46	NA	X	X	X		X
SWMU 47	SD007	X	X	X		@
SWMU 48	NA	X	X	X		X
SWMU 49	SD017	X	@			
SWMU 50	SD018	X	@			
SWMU 51	SS014	X	X	X		X
SWMU 52	SD008	X	X	X		@
SWMU 53	SD019	X	X			X
SWMU 54	SD020	X	@			
SWMU 55	SD009	X	@			
SWMU 56	NA	X	X	X		X
SWMU 57	NA	X	X	X		X
SWMU 58*	NA	X	X	X		X
SWMU 59*	NA	X	X	X		X
SWMU 60*	NA	X	X	X		X
SWMU 61	SS015	X	X	@		
SWMU 62	LF004	X	X	@		
SWMU 63	NA	X	X	X		X
SWMU 64	ST003	X	X	X		@
SWMU 65*	NA	X	X	X		X
SWMU 66*	WP001	X	@			
SWMU 67	ST003	X	X			X
SWMU 68	ST001	X	X	X		X
AOC 1	ST004	X	X	@		
AOC 2	WP002	X	@		@	
AOC 3	NA	X	X	X		X
AOC 4	ST005	X	X	X	@	X
AOC 5**	NA	X	X			X
AOC 6	SS001	X	X			X
AOC 7	ST002	X	X	X		X
AOC 8*	NA	X	X	X		@
AOC 9*	NA	X	X	X		X
AOC 10	SD010	X	X	@		@
AOC 11	SD011	X	X	@		@
AOC 12	SD012	X	X	@		@
AOC 13	SD013	X	X	X		X
AOC 14**	NA	X	X	X		X
AOC 15	SS016	X	X	X		X
AOC 16*	NA	X	X			X
AOC 17	AOC 017	X	X			X
AOC 18	AOC 018	X	X			X
AOC 19	AOC 019	X	X	X		@
AOC 20	NA	X	@			
Building 1655 OWS	OW001	X	X			@
Permeable Reactive Barrier	NA	X	X	@		



**Table C.1 (continued)**  
**Site Deliverables**

**Notes:**

X Phase has been completed  
 \* BRAC Site  
 \*\* BRAC Site being transferred from AFBCA to AFCEE per October 2001 Memo  
 @ Current phase  
 & Basewide LTM, including monitoring of the existing pump and treat system, is associated with this closed BRAC.  
 && SWMU 24 was closed for soils under RRS2 in March 2001. The current remedial investigation applies to the site's groundwater. For purposes of AFRIMS, this site is also associated with Paleo Channel investigation and remedial activities from FY 2003 to FY 2012 and with PRB construction and operation from FY2002 to FY 2004 and FY 2007 to FY 2025  
 &&& SWMU 25, a closed site is associated with Permeable Reactive Barrier remedial activities in FY 2005 and FY 2006

AOC Area of Concern  
 CMI Corrective Measures Implementation  
 LTM Long-Term Monitoring  
 NA Not Applicable  
 IRA Interim Remedial Action  
 O&M Operation and Maintenance  
 PR/VSII Preliminary Review/Visual Site Inspection  
 RCRA Resource Conservation and Recovery Act  
 PCO Project Closeout  
 RD/RA Remedial Design/Remedial Action  
 RFA RCRA Facility Assessment  
 RFI/CMS RCRA Facility Investigation/ Corrective Measures Study  
 RI/FS Remedial Investigation/ Feasibility Study  
 SI Site Investigation  
 SWMU Solid Waste Management Unit

Sources. Hydrogeologic, 2000; Hydrogeologic 2002; U S Air Force 2001d

# TAB

*APPENDIX D*

---

**APPENDIX D**  
**DECISION DOCUMENTS**

John Hall, Chairman  
Pam Reed, Commissioner  
Peggy Garner, Commissioner  
Dan Pearson, Executive Director



715 178

## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

March 2, 1995

Mr. ~~O~~len Long  
Site Manager  
Headquarters, Air Force Base Disposal Agency  
Location H, Bldg. 1215  
Carswell Air Force Base, Texas 76127-5000

RE: Carswell Air Force Base,  
Texas Natural Resource Conservation Commission Hazardous  
Waste Permit No. HW50289,  
Solid Waste Registration No. 65004,  
EPA ID NO. TX0571924042,  
Designation of Solid Waste Management Units and Areas of  
Concern for Investigation and/or Corrective Measures

### Determination of a Need for an RFI and Current Condition Report

Dear Mr. Long:

The TNRCC has recently completed its review of the 68 RCRA Solid Waste Management Units (SWMU) and 15 Areas of Concern (AOC) identified to date on Naval Air Station Fort Worth, also known as Carswell Air Force Base. Our review included the RCRA Facility Assessment (RFA) conducted in 1989; Hazardous Waste Permit No. 50289 issued in 1991; TNRCC's letter dated April 22, 1994; and the decisions resulting from the TNRCC's inspections of June 15, 1994, July 29, 1994, and February 13, 1995. Part V. I. of the permit allows the TNRCC to require investigation of units where a release may have occurred. Also, 30 Texas Administrative Code (TAC) §305.62 (d) states that "If good cause exists, the executive director may initiate and the Commission may order an amendment to a permit and the executive director may request an updated application if necessary".

Based on the above mentioned documents and inspections, the TNRCC has determined that a total of 50 SWMU's and 14 AOC's require investigations and/or corrective measures. The 18 remaining SWMU's and one AOC are designated for No Further Action (NFA) at this time. The NFA designation will remain so long as there is no further evidence of a release to the environment from these units.

Mr. Ohlen Long  
Carswell Air Force Base  
Page 2 of 3

seventeen (17) of the SWMU's noted for RFI's on the attached table are also designated for RFI's in Carswell's Hazardous Waste Permit No. 50289. Another 21 of the SWMU's were designated for RFI's in TNRCC's letter dated April 22, 1994. However, the RFI required in TNRCC's letter of April 22, 1994, for SWMU No. 43 (Bldg. 1414, Non-Destructive Inspection Waste Accumulation Area) is hereby revised to NFA, based upon further TNRCC inspection and review. TNRCC's letter dated November 30, 1994, required RFI's for SWMU No. 45 (Bldg. 1027) and SWMU No. 47 (Bldg. 1015) in addition to nine (9) AOC's. Eleven (11) additional SWMU's (No. 11, 17, 34, 39, 40, 44, 49, 50, 58, 60, and 66) are designated for RFI's by this letter. A total of 14 AOC's are identified for investigation. Waste Oil Dump at DP-17 was designated for NFA by TNRCC's letter dated September 22, 1993. The attached table lists the TNRCC's designation for each specific SWMU/AOC, as of February 16, 1995.

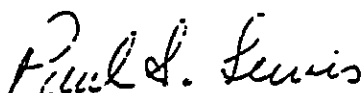
Those waste management units identified as SWMU's in the 1989 RFA and designated for an RFI in this letter require an investigation in accordance with Provision VIII of Hazardous Waste Permit No. 50289. In order to expedite the investigative process, the TNRCC will not require a permit amendment for the additional SWMU's until after the first phase of the investigation is completed. After the first phase of the investigation, Carswell AFB may be required to amend the permit to add those SWMU's that are shown to have released industrial solid waste or municipal hazardous waste to the environment.

The magnitude of the investigation for SWMU and AOC will depend on the unit's/area's size, condition, siting characteristics, and the constituents it managed. Those investigations and/or corrective actions already initiated need not be repeated, unless requested elsewhere. Please provide a schedule for submittal of the RFI Work Plans with a prioritization of the tasks and the rationale for the prioritization within 60 days of receipt of this letter.

Mr. Ohlen Long  
Carswell Air Force Base  
Page 3 of 3

The TNRCC looks forward to assisting the Air Force and Navy in developing the scope of work necessary to economically and adequately characterize releases to the environment. If you have any questions or need further assistance with this matter, please contact Mr. Geoffrey Meyer in my section at (512) 239-2577.

Sincerely,



Paul Lewis, Manager  
Corrective Action Section  
Industrial and Hazardous Waste Division

Enclosure

PL:gm

cc w/ enclosure

David Neleigh, EPA Region 6  
Don C. Eubank, TNRCC Region 4  
Charles Mauk, TNRCC Permits  
Wade Wheatley, TNRCC Permits

cc: Tennie Larson, IHW Corrective Action Section (CA070/103)

**Attachment**

**SWMU and AOC Designation  
Carswell Air Force Base /  
Naval Air Station Ft. Worth  
February 16, 1995**

<b>SWMU No. Age</b>	<b>Unit Description</b>	<b>Designation</b>
1	Pathological Waste Incinerator	NFA
2	Pathological Waste Storage Shed	NFA
3	Metal Cans	NFA
4	Facility Dumpsters	NFA
5	Bldg. 1628 Waste Accumulation Area	RFI
6	Bldg. 1628 Wash Rack and Drain	RFI
7	Bldg. 1628 Oil/Water Separator	RFI
8	Bldg. 1628 Sludge Collection Tank	RFI
9	Bldg. 1628 Work Station Waste Accumulation Area	NFA
10	Bldg. 1617 Work Station Waste Accumulation Area	NFA
11	Bldg. 1617 Waste Accumulation Area	RFI
12	Bldg. 1619 Waste Accumulation Area	RFI
13	Bldg. 1710 Waste Accumulation Area	RFI
14	Bldg. 1060 Bead Blaster Collection Tray	NFA
15	Bldg. 1060 Paint Booth Vault	NFA
16	Bldg. 1060 Waste Accumulation Area	RFI
17	Landfill No. 7	RFI
18	Fire Training Area No. 1	NFA
19	Fire Training Area No. 2	RFI
20	Waste Fuel Storage Tank	RFI
21	Waste Oil Tank	RFI

**SWMU and AOC Designation  
Carswell Air Force Base /  
Naval Air Station Ft. Worth  
February 16, 1995**

<b>SWMU No. AOC</b>	<b>Unit Description</b>	<b>Designation</b>
22	Landfill No. 4	RFI
23	Landfill No. 5	RFI
24	Waste Burial Area	RFI
25	Landfill No. 8	RFI
26	Landfill No. 3	RFI
27	Landfill No. 10	RFI
28	Landfill No. 1	RFI
29	Landfill No. 2	RFI
30	Landfill No. 9	RFI
31	Bldg. 1050 Waste Accumulation Area	RFI
32	Bldg. 1410 Waste Accumulation Area	RFI
33	Bldg. 1420 Waste Accumulation Area	RFI
34	Bldg. 1194 Waste Accumulation Area	RFI
35	Bldg. 1194 Vehicle Refueling Shop Oil/Water Separation System	RFI
36	Bldg. 1191 Waste Accumulation Area	RFI
37	Bldg. 1191 Vehicle Maintenance Shop Oil/Water Separator	RFI
38	Bldg. 1269 PCB Transformers Building	NFA
39	Bldg. 1643 Waste Accumulation Area	RFI
40	Bldg. 1643 Oil/Water Separation System	RFI
41	Bldg. 1414 Oil/Water Separation System Field Maintenance Squadron Aerospace Ground Equipment	RFI
42	Bldg. 1414 Waste Accumulation Area	RFI
43	Bldg. 1414 Non-Destructive Inspection (NDI) Waste Accumulation Area	NFA



**BEST AVAILABLE  
COPY**

**Attachment**

**SWMU and AOC Designation  
Carswell Air Force Base /  
Naval Air Station Ft. Worth  
February 16, 1995**

<b>SWMU No./ AOC</b>	<b>Unit Description</b>	<b>Designation</b>
44	Bldg. 1027 Oil/Water Separation Sysytem at the Aircraft Washing Hanger	RFI
45	Bldg. 1027 Waste Oil Tank Vault at the Aircraft Washing Hanger	RFI
46	Bldg. 1027 Waste Accumulation Area	NFA
47	Bldg. 1015 Jet Engine Test Cell Oil/Water Separator	RFI
48	Bldg. 1048 Fuel System Floor Drains	NFA
49	Aircraft Washing Area No. 1	RFI
50	Aircraft Washing Area No. 2	RFI
51	Bldg. 1190 Central Waste Holding Area	RFI
52	Bldg. 1190 Oil/Water Separation System	RFI
53	Storm Water Drainage System	RFI
54	Storm Water Interceptors	RFI
55	East Gate Oil/Water Separator	RFI
56	Bldg. 1405 Waste Accumulation Area	NFA
57	Bldg. 1432/1434 Waste Accumulation Area	NFA
58	Pesticide Rinse Area	RFI
59	Bldg. 8503 Weapons Storage Area Waste Accumulation Area	RFI
60	Bldg. 8503 Radioactive Waste Burial Site	RFI
61	Bldg. 1320 Power Production Maintenance Facility Waste Accumulation Area	RFI
62	Landfill No. 6	RFI
63	Entomology Dry Well	NFA
64	French Underdrain System	RFI
65	Weapons Storage Area Disposal Site	NFA

**SWMU and AOC Designation  
Carswell Air Force Base /  
Naval Air Station Ft. Worth  
February 16, 1995**

<b>SWMU No. AOC</b>	<b>Unit Description</b>	<b>Designation</b>
66	Sanitary Sewer System	RFI
67	Bldg. 1340 Oil/Water Separator	RFI
68	POL Tank Farm	RFI
AOC	ST-16, Bldg. 1518 Service Station	RFI
AOC	OT-18, Airfield TCE Plume	RFI
AOC	DP-17, Waste Oil Dump	NFA
AOC	Fuel Hydrant System	RFI
AOC	Grounds Maintenance Yard	RFI
AOC	RV Parking Area	RFI
AOC	Base Refueling Area	RFI
AOC	SW Aerospace Museum	RFI
AOC	Golf Course Maintenance Area	RFI
AOC	Bldg. 1064 Oil/Water Separator	RFI
AOC	Bldg. 1060 Oil/Water Separator	RFI
AOC	Bldg. 4210 Oil/Water Separator	RFI
AOC	Bldg. 1145 Oil/Water Separator	RFI
AOC	Unnamed Stream	RFI
AOC	Bldg. 1190 Storage Shed	RFI

Barry R. McBea, Chairman  
 R. B. "Ralph" Marquez, Commissioner  
 John M. Baker, Commissioner  
 Dan Pearson, Executive Director



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

November 5, 1996

Mr. Charles A. Rice  
 Team Chief  
 Base Closure Restoration Division  
 Air Force Center for Environmental Excellence  
 8001 Inner Circle Drive, Suite 2  
 Brooks AFB, Texas 78235-5328

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

**Re: Naval Air Station Ft. Worth JRB/Carswell AFB (NAS Ft. Worth)**  
**TNRCC Solid Waste Registration No. 65004**  
**EPA ID No. TX0571924042**  
**Hazardous Waste Permit No. 50289**  
**Solid Waste Management Unit (SWMU) 60**  
**Request for Revised Approval for Actions To Be Taken for Project 94-7007, Normally**  
**Occurring Radioactive Material Removal, Dated September 23, 1996**

### Partial Closure Approval

Dear Mr. Rice:

The Texas Natural Resource Conservation Commission (TNRCC) Federal Facilities Team received your supplemental report dated September 23, 1996, and received on September 28, 1996. The report states that radium levels observed in the soils at Solid Waste Management Unit (SWMU) 60, a Low Level Radioactive Waste site, are at or below background levels. As such, the Air Force's closure activities for the soils at this site have been completed in accordance with the TNRCC Risk Reduction Rules (RRR) Standard No. 1, pursuant to 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S.

In order to attain RRR Standard No. 1, all industrial solid waste and municipal hazardous waste and waste residues must be removed or decontaminated from affected media (i.e., soil, surface water, groundwater, air) to naturally occurring background levels. We cannot approve final closure of SWMU 60 until the Air Force completes its study of background radium in groundwater. The background investigation was approved by the TNRCC in our letter of October 24, 1996. Once the Air Force has established that the groundwater at this site has attained RRR Standard No. 1, no further action will be required at SWMU 60.

Mr. Charles A. Rice

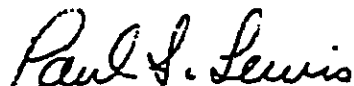
Page 2

November 5, 1996

Please be aware of the continuing obligation of 30 TAC §335.8(b)(5), which requires the Air Force to conduct additional remedial activities in the event that a substantial change in circumstances at the facility, or area, results in an unacceptable threat to human health or the environment. Finally, 30 TAC §335.4 requires that persons associated with a site are under the continuing obligation to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare. A TNRCC field inspector may review your Final Report and may conduct a closure inspection of the site.

If you have any questions or need further assistance with this matter, please contact Mr. Geoffrey Meyer in the Corrective Action Section in Austin at (512) 239-2577, mail code MC127, or via the e-mail address [gmeyer@tnrcc.state.tx.us](mailto:gmeyer@tnrcc.state.tx.us).

Sincerely,



Paul S. Lewis, Manager  
Corrective Action Section  
Industrial and Hazardous Waste Division

PL/GM

cc: Mr. Joel Sanders, Southern Division, Naval Facilities Engineering Command, P.O. Box 190010, North Charleston, SC 29419-9010  
Ms. Stacy Gent, Department Head, Environmental Department/Code 110, Department of the Navy, Building 1215, NAS JRB Ft. Worth, Texas 76127-6200  
Mr. Ohlen Long, P.E., AFBCA, 6550 White Settlement Road, Ft. Worth, Texas 76114-3520  
Mr. Michael W. S. Hayes, Esq., GM-0905-14//CAR(sel), JAGC, USNR Counsel, Office of the Asst. General Counsel, 4400 Dauphine St., New Orleans, LA 70146-5000  
Ms. Judith R. McCulley, USEPA Region 6  
Mr. Tim Sewell, TNRCC Region 4 Office, Duncanville  
Ms. Ginny King, Natural Resource Trustees, PCD Division (MC 142)

Barry R. McBee, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
John M. Baker, *Commissioner*  
Dan Pearson, *Executive Director*



715 187

## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

July 16, 1997

Mr. Charles A. Rice  
Team Chief  
Base Closure Restoration Division  
HQ AFCEE/ERB  
3207 North Road  
Brooks AFB, Texas 78235-5363

Re: Review of the Draft Assessment Report Form (ARF) and Plan B Risk Assessment - Base Gas Station and Base Service Station, NAS Fort Worth - Carswell Field, Fort Worth (Tarrant County), Texas (LPST ID No. 104524, Facility ID No. 009696, Priority 2.6)

Dear Mr. Rice:

We have completed our review of the Draft Assessment Report Form (ARF) and Plan B Risk Assessment, submitted to this Office on June 1997. After careful review of all the data provided and pursuant to Title 30, Texas Administrative Code (TAC), Section 334.71 - 334.85, we conclude the submitted draft documents satisfy the requirements of RG-175 entitled *Guidance for Risk-Based Assessments at LPST Sites in Texas*, and RG-36 entitled *Risk-Based Corrective Action for Leaking Storage Tank Sites*. Please proceed to submit the above-mentioned documents in their final stage so that the 30-day mandated review can take place.

We appreciate your cooperation in this matter. Please note that all correspondence must include the LPST ID Number and should be submitted to both the local TNRCC Regional office and to the Central Office in Austin. Should you have any questions, please contact me at 512/239-2200.

Sincerely,

A handwritten signature in cursive script, appearing to read "Antonio Peña".

Antonio Peña, P.E.  
Federal Facilities Coordinator  
Responsible Party Remediation Section  
Petroleum Storage Tank Division

ARP/keh  
104524.dft

cc: Sam Barrett, TNRCC Region 4 Field Office  
(1101 East Arkansas Lane, Arlington, Texas 76010-6499)  
Mr. Olen Long (AFBCA/OL-H)  
(6550 White Settlement Road, Ft. Worth, TX 76114-3520)



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

September 16, 1997

### CERTIFIED MAIL

Mr. Charles Rice  
HQ AFCEE/ERB  
3207 North Road  
Brooks AFB, Texas 78235-5363

Re: Subsurface Hydrocarbon Contamination at the Base Gas Station (BGS) and Base Service Station (BSS), NAS Fort Worth, Carswell AFB (Tarrant County), Texas  
(LPST ID No. 104524 - Priority 3.2 - Facility ID No. 009696)

Dear Mr. Rice:

We have completed our review of the investigation and remedial procedures addressing subsurface contamination at the above referenced facility as provided in the final Risk-Based Assessment (RBA) and Plan B Risk Assessment reports submitted by your consultant, IT International Technology Corporation on August 17, 1997. After careful review of all available information, we are in general concurrence with your consultant's recommendation for a no further corrective action status at these sites, however, additional groundwater sampling is required to monitor Chemicals of Concern (COCs) and plume stability.

Please submit a workplan for two semi-annual groundwater sampling events according to the following plan:

Base Gas Station: Monitor wells MW-3, MW-5 and MW-6;

Base Service Station: Monitor Wells BSS-B, MW-2, MW-10 and MW-11.

Surface Water: Take an upgradient and downgradient water sample from the Fork Trinity River.

In addition, upon review of the RBA reports the following deficiency was noted. Please submit the following items:

Attachment 14: Texas Natural Resource Conservation Commission (TNRCC) Form 0019 for all wells was missing for both the BGS and BSS.

Mr. Charles Rice

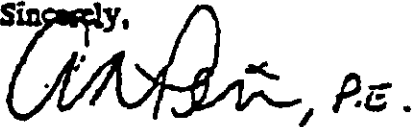
Page 2

715 189

Upon completion of the above mentioned items, a report which addresses the above concerns should be submitted to this Office. Upon receipt, this project will be reevaluated and a determination made as to whether closure or further corrective action is warranted. The LPST and Facility ID Numbers should be included in all correspondence.

If you have any questions concerning this letter, please contact me at 512/239-2200. Your cooperation in this matter is appreciated.

Sincerely,

Handwritten signature of Antonio Pafia, P.E.

Antonio Pafia  
Coordinator, Team II  
Responsible Party Remediation Section  
Petroleum Storage Tank Division

ARP/kch  
104524.rsk

cc: Sam Barrett, TNRCC Region 4 Field Office, 817/795-2519  
(1101 East Arkansas Lane, Arlington, Texas 76010-6499)

Barry R. McBee, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
John M. Baker, *Commissioner*  
Dan Pearson, *Executive Director*



715 190

## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

October 21, 1997

### CERTIFIED MAIL

Mr. Charles Rice  
Team Chief  
Base Closure Restoration Division  
HQ AFCEE/ERB  
3207 North Road  
Brooks AFB, Texas 78235-5363

Re: Subsurface Hydrocarbon Contamination at the Base Gas Station (BGS) and Base Service Station (BSS), NAS Fort Worth, Carswell AFB (Tarrant County), Texas  
(LPST ID No. 104524 - Priority 3.2 - Facility ID No. 009696)

Dear Mr. Rice:

We have completed our review of the investigation and remedial procedures addressing subsurface contamination at the above referenced facility as provided in the Groundwater Sampling and Monitoring Workplan submitted on September 26, 1997. After careful review of all available information, we conclude that the workplan satisfy the requirements stipulated in our September 16, 1997 letter. Additionally, we reiterate our concurrence with the recommendation for no further corrective action at the subject sites. Please be advised that if the results of the requested monitoring period indicate an increasing or erratic contaminant trend with time, you may be requested to extend the monitoring period or develop target cleanup concentrations under Plan B of our RBCA guidance.

If you have any questions concerning this letter, please contact me at 512/239-2200. Your cooperation in this matter is appreciated.

Sincerely,

Antonio Peña  
Coordinator, Team II  
Responsible Party Remediation Section  
Petroleum Storage Tank Division

ARP/keh  
104524.gws

cc: Sam Barrett, TNRCC Region 4 Field Office, 817/795-2519  
(1101 East Arkansas Lane, Arlington, Texas 76010-6499)





## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

**April 28, 1999**

Mr. Michael Dodyk  
Restoration Team Chief  
HQ AFCEE/ERD  
P.O. Box 27008  
Fort Worth, TX 76127-0008

RE: NAS/JRB Carswell AFB  
TNRCC Solid Waste Registration No. 65004  
TNRCC Hazardous Waste Permit No. HW-50289  
EPA ID No. TX0571924042  
SWMU No. 13, Visual Information Center Work Station Waste Accumulation Area  
Approval of No Further Action Request Report

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your No Further Action Request Report for SWMU 13, dated April 15, 1999. The Report indicated that RFI activities for this unit are not necessary, due to the 1989 RFA recommendation of no further action and determination that there had not been a release and the potential for release is low. Also, the 1996 investigation following unit removal found that the wastes were properly managed and there was no evidence of a release.

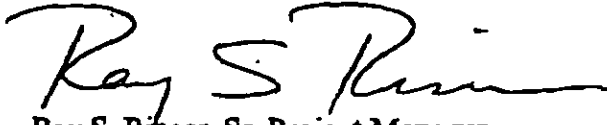
The TNRCC has completed a review of the No Further Action Request Report. Based on the information contained in the Report, it appears that No Further Action status is warranted. SWMU 13 is released from RFI requirements.

Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If SWMU 13 fails to comply with these requirements, the burden remains upon AFCEE to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Report and conduct an inspection of the unit.

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4

Office in Arlington. The TNRCC Solid Waste Registration Number and SWMU 13 should be referenced in all submittals.

Sincerely,

A handwritten signature in black ink, appearing to read "Ray S. Risner". The signature is fluid and cursive, with the first name "Ray" being more prominent.

Ray S. Risner, Sr. Project Manager  
Team II, Corrective Action Section  
Remediation Division

RSR/tsr

cc: Mr. Joe Dunkle, Remedial Program Manager, HQ AFCEE/ERD  
3207 North Road, Brooks AFB, TX 78235  
Mr. Gary W. Miller, Federal Facility Team, EPA Region VI Office - Dallas  
Mr. Sam Barrett, Waste Program Manager, TNRCC Region 4 Office - Arlington

R. B. "Ralph" Marquez, *Commissioner*  
John M. Baker, *Commissioner*  
Jeffrey A. Saitas, *Executive Director*



715 193

## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

January 31, 2000

Mr. Rafael E. Vazquez  
Regional BRAC Environmental Coordinator  
AFBCA/ROL Bergstrom AFB  
3711 Fighter Drive  
Austin, TX. 78719-2557

RE: Carswell Air Force Base (AFB)  
TNRCC SWR No. 65004, EPA ID. No. TX0571924042  
Review of Draft Closure Report for Unnamed Stream Site  
(AOC 14, SWMU 67 and lower portion of SWMU 64)  
Approval - Risk Reduction Standard No. 1 - Soil

Dear Mr. Vazquez

The Texas Natural Resource Conservation Commission (TNRCC) has completed our review of the *Draft Closure Report for Unnamed Stream Site* (Final Report) dated September 1999 and received by the TNRCC on September 30, 1999. According to the Final Report, the closure of the Unnamed Stream Area addresses Solid Waste Management Unit (SWMU) 67 Former Oil/Water Separator, Area of Concern (AOC) 14 Unnamed Stream Drainage Channel, and the portion of SWMU 64 French Underdrain System located on Base Realignment and Closure (BRAC) property. In addition to our review of the Final Report, the TNRCC also reviewed comments received from EPA Region 6 dated November 4, 1999.

According to the Final Report, closure/remediation activities associated with the Unnamed Stream Site (SWMU 67, AOC 14, and a portion of SWMU 64) address soil contamination only. These closure/remediation activities have been completed in accordance with the TNRCC Risk Reduction Standard (RRS) No. 1, pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S. Groundwater contamination was not addressed by the Final Report because it is believed that this contamination is associated with up-gradient releases from the base fuel tank-farm (SWMU 68) and the abandoned base gas station (AOC 7). Any soil and groundwater contamination which can be linked to releases from the upper portion of SWMU 64, SWMU 68 and AOC 7 will be addressed via the Defense Environmental Restoration Program (DERA) and the closure/remediation of these sites will be documented via a separate submittal.

In order to attain RRS No. 1, all industrial solid waste and municipal hazardous waste and waste residues must be removed or decontaminated from affected media (i.e., soil, surface water, groundwater, air) to naturally occurring background levels. Waste constituents which are not naturally occurring (such as organic chemicals) must be cleaned to the analytical method detection limits. EPA defines these limits as Practical Quantitation Limits - the minimum concentration of

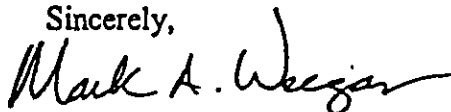
a substance that can be measured within specific limits of precision and accuracy under routine operating lab conditions. Based upon the information contained in the Final Report and other information available to staff, it appears that the closure/remediation of soil contamination associated with releases from the Unnamed Stream Site has achieved RRS No. 1.

As noted by EPA Region 6 in their letter of November 4, 1999, in addition to fuel related contaminants which appear to be migrating onto the site from up-gradient sources, monitoring wells located on Westworth Redevelopment Authority (WRA) property have in the past identified the presence of tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2-dichloroethene (cis, DCE). These contaminants are not fuel related volatile organic compounds (VOCs). It is possible that these VOCs are also related to up-gradient sources located on either NAS Fort Worth or Air Force Plant 4, however, the location of the wells on WRA property do not appear to correlate with the dimensions of known VOC groundwater plumes. The transfer of BRAC property associated with the location of the Unnamed Stream Site may not be possible until issues related to the source of the VOC groundwater contamination has been addressed.

Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon AFBCA to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Final Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-2360. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Arlington. The TNRCC Solid Waste Registration Number and Unit Name should be referenced in all submittals.

Sincerely,



Mark A. Weegar, Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

MW/mw

cc: Mr. Gary Miller, U.S. EPA Region VI, Dallas, TX.(6PD-NB)  
Mr. Tim Sewell, TNRCC Region 4, Arlington, TX (MC-R4)



**DEPARTMENT OF THE AIR FORCE**  
**HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE**  
**BROOKS AIR FORCE BASE TEXAS**

715 195

12 July 2000

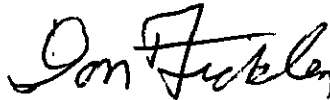
MEMORANDM FOR TEXAS NATURAL RESOURCE CONSERVATION COMMISSSION  
ATTENTION: MR. RAY S. RISNER

FROM: HQ AFCEE/ERD  
3207 North Road  
Brooks AFB, TX 78235-5363

SUBJECT: Request for Withdrawal of Compliance Plan Application No. CP-50289, Naval Air Station Joint Reserve Base – FT Worth, Formerly Carswell Air Force Base, Industrial Solid Waste Registration No. 65004, TNRCC Hazardous Waste Permit No. HW-50289, EPA ID No. TX0571924042

In response to your letter dated 8 Feb 00, entitled Comments to Risk-Based Remediation SWMU 68, 67, 64, and AOC 7 Report dated July 1997, the Air Force Center for Environmental Excellence (AFCEE) requests that the Texas Natural Resource Conservation Commission (TNRCC) withdraw the above referenced compliance plan application originally received by the TNRCC on 22 Nov 97. Following agency review of the above referenced report, submitted 15 Sep 97, the TNRCC Corrective Action (CA) Section has determined that SWMU 68 (POL Tank Farm) and AOC 7 (Fuel Loading Area) did not manage or release solid waste and recommended that these units be removed from the CA portion of the above referenced permit. The TNRCC also requested that these two units be addressed under the Petroleum Storage Tank (PST) Program. Based on the determination that SWMU 68 and AOC 7 will not require CA activities under the RCRA Permit and the fact that groundwater monitoring for SWMU 68 shows no remaining BTEX groundwater impact at this area, AFCEE formally requests that the compliance plan be withdrawn by the TNRCC. As noted in the 8 Feb 00 TNRCC letter, AFCEE will continue to address SWMU 64 (French Underdrain System) under the TNRCC CA Section and in compliance with all applicable permit requirements.

Should you have any questions regarding these responses to comments or need additional information, please either call Mike Dodyk at (817) 782-7167 or me at (210) 536-5290.



Don Ficklen  
AFCEE Restoration Team Chief  
NAS FT Worth JRB

cc:

Mr. Dipak Dhakta  
TNRCC Central Office  
P.O. Box 13087 (MC-130)  
Austin TX 75711-3087

Mr. Tim Sewell  
TNRCC Region 4  
1101 E. Arkansas Lane  
Arlington TX 76010-6499

Mr. Michael Dodyk  
AFCEE/ERD  
Bldg. 1619, 1st Floor  
P.O. Box 27008  
NAS JRB FT Worth TX 76127-0008

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 John M. Baker, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

December 19, 2000

Mr. Rafael E. Vazquez  
 Regional BRAC Environmental Coordinator  
 AFBCA/ROL Bergstrom AFB  
 3711 Fighter Drive  
 Austin, TX. 78719-2557

Re: Carswell Air Force Base  
 TNRCC Solid Waste Registration No. 65004  
 Hazardous Waste Permit No. HW-50289  
**Review of Draft Closure Report for Grounds Maintenance Yard (AOC 05)**  
 Approval - Risk Reduction Standard No. 2

Dear Mr. Vazquez:

The Texas Natural Resource Conservation Commission (TNRCC) has completed our review of the *Draft Closure Report for Grounds Maintenance Yard* (Final Report) dated October 2000 and received by the TNRCC on December 14, 2000. In addition, the TNRCC also reviewed comments received from EPA Region 6 dated December 4, 2000. According to the Final Report, closure activities have been completed in accordance with the TNRCC Risk Reduction Standard (RRS) No. 2, pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S.

The Final Report contains documentation indicating that closure/remediation of the Grounds Maintenance Yard has attained RRS No. 2 such that no post-closure care or engineering or institutional control measures are required. Based upon the information contained in the Final Report and other information available to staff, it appears that the closure has achieved RRS No. 2.

As specified in §335.560, AFBCA must submit proof of deed certification to the TNRCC within ninety (90) days from the date of this letter. Upon acceptance of the proof of deed certification, the TNRCC will transmit a final letter releasing AFBCA from post-closure care responsibilities for the Grounds Maintenance Yard.

If applicable, please submit a request in writing to update your Notice of Registration (NOR) to the Registration and Reports Section at Mail Code MC-129 with a copy of this letter as an attachment.

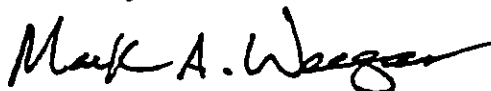
Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause

Mr. Rafael E. Vazquez  
Page 2  
December 19, 2000

the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon AFBICA to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Final Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-2360. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Arlington. The TNRCC Solid Waste Registration Number and Unit Name should be referenced in all submittals.

Sincerely,



Mark A. Weegar, Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

MW/mw

cc: Mr. Gary Miller, U.S. EPA Region VI, Dallas (6PD-NB)  
Mr. Tim Sewell, TNRCC Region 4 - Arlington (MC-R4)





## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

February 5, 2001

Mr. Charles Pringle  
Team Chief/BEC  
HQ-AFCEE/ERB  
3207 North Road, B-532  
Brooks AFB, TX 78235-5363

Re: Carswell Air Force Base  
TNRCC Solid Waste Registration No. 65004  
Hazardous Waste Permit No. HW-50289  
**Review of Draft Closure Report for Offsite Weapons Storage Area**  
Approval - Risk Reduction Standard No. 2

Dear Mr. Pringle:

The Texas Natural Resource Conservation Commission (TNRCC) has completed the review of the *Draft Closure Report for Offsite Weapons Storage Area NAS Fort Worth/Carswell Field* (Final Report) dated July 2000 and received by the TNRCC on July 25, 2000. The TNRCC also reviewed comments received from EPA Region 6 dated August 9, 2000. The Offsite Weapons Storage Area is identified as a 511 acre off-site parcel owned by United States Air Force and used primarily for the storage and maintenance of munitions, as well as, the disposal of ordnance and the limited storage of low-level radioactive waste. The referenced Final Report addresses the investigation and closure/remediation of the following sites:

- Areas A-1 and A-2 outdoor material storage and maintenance area;
- Area A-3 SWMU 59 Bldg. 8503 waste accumulation area and unpaid perimeter;
- Area A-5 disturbed surface area southwest of control fence;
- Explosive Ordnance Disposal (EOD) Range;
- Bunker floor drain outlets;
- Drainage ways DW-1, DW-2, DW-3, DW-4, DW-5, DW-6, DW-7, DW-8 and DW-9;
- Building 8500, 8503, and 8507 underground storage tanks (USTs);
- Areas beneath transformers; and
- Leach field

The closure of the Building 8505 and 8514 USTs and the Area A-4 Vehicle Fueling Area is being reviewed separately by the TNRCC's Petroleum Storage Tank Responsible Party Remediation Section.

According to the Final Report, a number of sites were closed to 30 TAC §335.554 RRS No.1

Closure/Remediation to Background. In order to attain RRS No. 1, all industrial solid waste and municipal hazardous waste and waste residues must be removed or decontaminated from affected media (i.e., soil, surface water, groundwater, air) to naturally occurring background levels. Waste constituents which are not naturally occurring (such as organic chemicals) must be cleaned to the analytical method detection limits. EPA defines these limits as Practical Quantitation Limits - the minimum concentration of a substance that can be measured within specific limits of precision and accuracy under routine operating lab conditions. According to the Final Report, the following sites have attained RRS No. 1:

- Areas A-1 and A-2 outdoor material storage and maintenance area;
- Area A-5 disturbed surface area southwest of control fence;
- Explosive Ordinance Disposal (EOD) Range;
- Building 8503 UST
- Drainage ways DW-1, DW-2, DW-4, DW-5, DW-6, DW-7, DW-8 and DW-9; and
- Areas beneath transformers

The Final Report also contains documentation indicating that a number of sites attained closure under 30 TAC §335.555 RRS No. 2 Closure/Remediation to Health-Based Standards and Criteria, such that no post-closure care or engineering or institutional control measures are required. According to the Final Report, the following sites have attained RRS No. 2:

- Area A-3 SWMU 59 Bldg. 8503 waste accumulation area and unpaved perimeter;
- Bunker floor drain outlets;
- Drainage way DW-3
- Building 8500 and 8507 USTs; and
- Leach field

Based upon the information contained in the Final Report and other information available to staff, it appears that the closure of the above listed sites have attained closure/remediation to RRS No. 1 and RRS No. 2, respectively.

Please note, however, as specified in §335.560 Post Closure Care and Deed Certification for Risk Reduction Standard No. 2, a person is required to place in the county deed records, a metes and bounds description of the portion or portions of the tract of land on which closure or remediation of industrial solid waste, municipal hazardous waste or contaminants was achieved. Our review of *Figure 6-1 Closure Boundaries* does not indicate that the sites closed under RRS No. 2 were broken out from the RRS No. 1 sites. Following conversations with representatives of the Air Force Base Conversion Agency (AFBCA), it was agreed by AFBCA that the entire area shown on Figure 6-1 would be closed under RRS No. 2 rather than re-survey the Weapons Storage Area to exclude RRS No. 1 sites. Based upon this agreement, the TNRCC's Corrective Action Section concurs with the closure of all sites at the Weapons Storage Area under RRS No. 2.

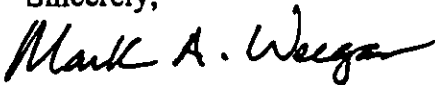
Mr. Charles Pringle  
Page 3  
February 5, 2001

As specified in §335.560, AFBCA must submit proof of deed certification to the TNRCC within ninety (90) days from the date of this letter. Upon acceptance of the proof of deed certification, the TNRCC will transmit a final letter releasing AFBCA from post-closure care responsibilities for the Weapons Storage Area.

Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon AFBCA to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Final Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-2360 or via e-mail: mweegar@tnrcc.state.tx.us. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Arlington. The TNRCC Solid Waste Registration Number and Unit Name should be referenced in all submittals.

Sincerely,



Mark A. Weegar, Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

MW:mw

cc: Mr. Alvin Brown, AFBCA/ROL, Austin, TX  
Mr. Gary Miller, U.S. EPA Region 6, Dallas, TX.(6PD-NB)  
Mr. Tim Sewell, TNRCC Region 4 - Arlington (MC-R4)

Robert J. Huston, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
John M. Baker, *Commissioner*  
Jeffrey A. Saitas, *Executive Director*



715 202

## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

February 8, 2000

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Mr. Don Ficklen  
Restoration Team Chief  
Air Force Center for Environmental Excellence (AFCEE)  
3207 North Road  
Brooks AFB, TX 78235-5363

Re: Comments to Risk-Based Remediation SWMU 68, 67, 64, and AOC 7 Report,  
dated July 1997  
Naval Air Station Fort Worth JRB/Carswell AFB (NAS Ft. Worth)  
TNRCC Industrial Solid Waste Registration No. 65004  
TNRCC Hazardous Waste Permit No. HW-50289  
EPA ID No. TX0571924042

Dear Mr. Ficklen:

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed the above referenced Report, submitted September 15, 1997. These units were included in the facility's hazardous waste permit, or by letter, as units required to undergo a RCRA Facility Investigation (RFI). At the time of assessing these units for an RFI, there was a documented release of BTEX to the groundwater from this unit. Therefore, this document was originally written in PST language and it was submitted to the TNRCC PST Division. The SWMU 68 portion of this document was reviewed and approved by the PST Division, LPST ID No. 104819 was assigned, and a PST monitoring program was initiated. SWMU 68 (also designated ST14) is the POL Tank Farm and Fuel Loading Area. However, AOC 7 (the Former Base Refueling Area), SWMU 64 (the French Underdrain), and SWMU 67 (the Oil/Water Separator), together designated SD13, were referred to Industrial and Hazardous Waste for review, as these units could have possibly managed and released solid waste.

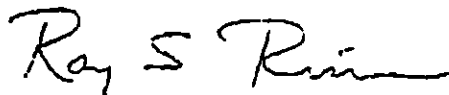
Based on our review of this document, the Corrective Action (CA) Section has determined that AOC 7 did not manage or release solid waste. Therefore, as a PST eligible site, the Report (concerning AOC 7) was referred to PST on January 20, 2000. SWMU 68 and AOC 7 are no longer required to complete the RFI/CA Program. The TNRCC no longer removes SWMUs from the CA portion of the permit; however, AFCEE may request that the permit reflect that SWMU 68 is being addressed by PST authority, no further permit required CA. The TNRCC directs AFCEE, upon the occurrence of the current/next permit modification, to add all the extra RFI units incorporated into the CA Program by TNRCC letters dated April 22, 1994 and March 2, 1995 (excluding AOC 7).

Mr. Don Ficklen  
Page 2  
February 8, 2000

The CA Section has also determined that SWMU 64 and 67 were originally constructed as remediation units for the BTEX release from SWMU 68 (and possibly AOC 7) and should have initially been assessed as PST sites. However, our review can not conclusively determine that these two units did not also manage or release solid wastes. Therefore, the permit required CA for these units shall be completed. In that regard, the TNRCC approves the Report as a RCRA Facility Investigation (RFI) Report for SWMUs 64 and 67. AFCEE should now proceed to the Corrective Measures Implementation (CMI) phase of the permit required CA and submit a CMI Workplan for closure of SWMU 64. It is noted however that SWMU 67 and the lower portion of SWMU 64 (which will be referred to as ancillary equipment) is currently being closed by removal to Risk Reduction Standard (RRS) 2 or 1 by the Base Realignment and Closure (BRAC) Program, as it is located on BRAC property. The TNRCC suggests that a closure plan be submitted with a similar closure approach for the remaining portion of SWMU 64 (which will be referred to as SWMU 64) on the Defense Environmental Restoration Account (DERA) property. It should be noted that at this point of the CA Program, the public should be notified of the RFI results and CMI plans. However, it is currently the policy of the TNRCC that if closure is to RRS 1 or 2, the public notice for RFI Units can be included with the next permit modification.

An original and two copies of the CMI Workplan for SWMU 64 must be submitted to the TNRCC at the letterhead address using mail code number MC-127. An additional copy should be submitted to Mr. Sam Barrett, Waste Program Manager, TNRCC, Region 4 Office, 1101 East Arkansas Lane, Arlington, TX 76010-6499, and to Mr. Gary Miller, EPA, Region 6, Dallas, Tx. The CMI Workplan must be received within 120 days from the date of this letter. Should you need additional information or wish to discuss these comments or the due date, please call me at (512) 239-2333. Thank you for your cooperation in this matter.

Sincerely,



Ray S. Risner, Sr. Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Mr. Rafael Vasquez, AFBCA/HQ - Bergstrom  
Mr. Gary Miller, EPA Region 6, Dallas, TX (6PD-NB)  
Mr. Sam Barrett, Waste Program Manager, TNRCC Region 4 Office, Arlington  
Mr. Mark Weegar, BRAC Project Manager, CA Section (MC-127)

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 John M. Baker, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

February 18, 2000

Mr. H. Don Ficklen, CPG  
 Environmental Restoration Division  
 HQ AFCEE/ERD  
 3207 North Road  
 Brooks AFB, Texas 78235-5353

Re: Clarification of Jurisdiction, Carswell AFB, Building 1170- (Tarrant County), Texas  
 (LPST ID No. 104819 - Facility ID No. 9696 - Priority 3 2); R-4

Dear Mr. Ficklen:

This letter, at the request of your consultant, identifies and clarifies regulatory jurisdiction of four different physical areas assigned to LPST ID Number 104819.

The Department of Defense has identified the areas assigned to LPST 104819 as ST14 and SD13. SD 14 is the area including the above ground storage tanks and loading racks west of Rogner Drive. ST13 is the area directly east of SD14 across Rogner Drive.

The TNRCC, Remediation Division, Corrective Action Section has identified four different areas within areas ST14 and SD13 (LPST site 104819). The four areas are identified as Solid Waste Management Units (SWMU) 64, 67, 68, and Area of Concern (AOC) 7. SWMU 68 is the area known as SD14, it is the ASTs and loading rack area. SWMU 64, 67, and AOC 7 are all within the area known as SD13. SWMU 64 is a french drain constructed for remedial purposes. SWMU 67 is a oil water separator and AOC 7 is a former base refueling station.

Because SWMU 67 and 64 may have managed small quantities of solid waste, these areas will remain under the jurisdiction of the Corrective Action Section and the contact person is Mr. Ray Risner. SWMU 68 and AOC 7 will be regulated by the Petroleum Storage Tank-Responsible Party Remediation (PST-RPR) Section.

Please provide a proposal to the PST-RPR Section for the next appropriate phase of work at LPST site Number 104819 which includes SWMU 68 and AOC 7.

Please note that it is your responsibility to forward this document to your consultant. Additionally this document can be obtained from the case file in our Central Records Office in Austin Texas.

Mr. H. Don Ficklen  
February 18, 2000  
Page 2

Any written response to these comments should be submitted to the TNRCC Central Office at the letterhead address, using mail code number MC-137 DRR. Should you need additional information or wish to discuss these comments, please call me at (512) 239-2200. Thank you for your cooperation in this matter.

Sincerely,



Dennis Rogers  
Remediation Coordinator, Team II  
PST Responsible Party Remediation Section  
Remediation Division

DRR/keh  
104819.ltr

Robert J. Huston, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
John M. Baker, *Commissioner*  
Jeffrey A. Saitas, *Executive Director*



715 206

## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

April 26, 2000

Mr. Michael R. Dodyk, P.E.  
Restoration Team Chief  
HQ AFCEE/ERD  
P.O. Box 27008  
Fort Worth, TX 76127-0008

RE: Approval of RCRA Facility Investigation Report SWMU 27 (Landfill 10)  
dated February 2000  
Risk Reduction Standard 1, No Further Action Request Report  
NAS Fort Worth JRB, Texas/Carswell AFB  
TNRCC Solid Waste Registration No. 65004  
TNRCC Hazardous Waste Permit No. HW-50289  
EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your Final RCRA Facility Investigation (RFI) Report for Landfill 10, submitted March 2, 2000 indicating that there has not been a release from SWMU 27 (Landfill 10). It is requested that no further action is warranted under the HSWA Corrective Action Program and closure has been achieved in accordance with the TNRCC Risk Reduction Standard (RRS) No. 1 pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S.

In order to attain RRS No. 1, all industrial solid waste and municipal hazardous waste and waste residues must be removed or decontaminated from affected media (i.e., soil, surface water, groundwater, air) to naturally occurring background levels. Waste constituents which are not naturally occurring (such as most organic chemicals) must be cleaned to the analytical method detection limits. EPA defines these limits as Practical Quantitation Limits - the minimum concentration of a substance that can be measured within specified limits of precision and accuracy under routine operating lab conditions.

The TNRCC has completed a review of the Final RFI Report. Based on the information contained in the Report and other information available to staff, it appears that SWMU 27 has not had a release and therefore has attained RRS No. 1. Therefore, the Report is hereby approved, SWMU 27 is released from HSWA Corrective Action, deed recordation and post-closure care requirements, with no further action required. The U. S. Air Force may request an appropriate modification to the Hazardous Waste Permit to incorporate this information for SWMU 27 at any time. The public notice requirements will be served with the modification process.



Please submit a request in writing, to update your Notice of Registration (NOR) to the TNRCC Registration and Reporting Section at Mail Code MC-129 with a copy of this letter as an attachment.

Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon the U. S. Air Force to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Final Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to Mr. Sam Barrett, Waste Program Manager, TNRCC Region 4 Office, 1101 East Arkansas Lane, Arlington TX 76010-6499. The appropriate TNRCC Solid Waste Registration Number, Hazardous Waste Permit No., EPA ID No., Unit Name and No. (including any RFI Unit No. designation) should be referenced in all submittals.

Sincerely,



Ray S. Risner, Sr. Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Mr. Don Ficklen, Remedial Program Manager, HQ AFCEE/ERD  
3207 North Road, Brooks AFB, TX 78235  
Mr. Gary W. Miller, Federal Facility Team, EPA Region VI Office (6PD-NB) - Dallas  
Mr. Sam Barrett, Waste Program Manager, TNRCC Region 4 Office - Arlington

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 John M. Baker, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

July 19, 2000

Mr. Michael Dodyk  
 Restoration Team Chief  
 HQ AFCEE/ERD  
 P.O. Box 27008  
 Fort Worth, TX 76127-0008

RE: Approval of No Further Action Request Addendum Report, dated April 7, 2000  
 SWMU Nos. 7 & 8  
 NAS/JRB Carswell AFB  
 TNRCC Solid Waste Registration No. 65004  
 TNRCC Hazardous Waste Permit No. HW-50289  
 EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your No Further Action Request Addendum Report for SWMU Nos. 7 & 8, dated April 7, 2000. The TNRCC has completed a review of the original No Further Action Request Report, submitted in January, 2000, and the Addendum referenced above. Based on the information contained in the reports, it does not appear that there is any evidence of a release from SWMU Nos. 7 & 8; therefore, No Further Action status is warranted. SWMU Nos. 7 & 8 are hereby released from RFI requirements.

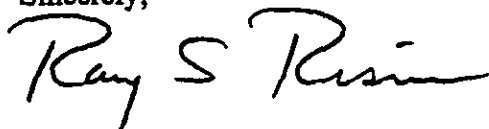
Although AFCEE may not remove these units from the Corrective Action portion of the permit, during the next permit modification you may add No Further Action language to SWMU Nos. 7 & 8. Please submit a request in writing to update your Notice of Registration (NOR) to the TNRCC Registration and Reporting Section at Mail Code MC-129 with a copy of this letter as an attachment.

Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If SWMU No. 7 or 8 fails to comply with these requirements, the burden remains upon AFCEE to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Reports and conduct an inspection of the unit.

Mr. Dodyk  
Page 2  
July 19, 2000

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit **an original and one copy** of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Arlington. The TNRCC Solid Waste Registration Number and SWMU No. should be referenced in all submittals.

Sincerely,

A handwritten signature in cursive script that reads "Ray S Risner".

Ray S. Risner, Sr. Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Mr. Don Ficklen, Remedial Program Manager, HQ AFCEE/ERD  
3207 North Road, Brooks AFB, TX 78235  
Mr. Gary W. Miller, Federal Facility Team, EPA Region VI Office - Dallas  
Mr. Sam Barrett, Waste Program Manager, TNRCC Region 4 Office - Arlington

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 John M. Baker, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

November 20, 2000

Mr. Michael Dodyk  
 Restoration Team Chief  
 HQ AFCEE/ERD  
 P.O. Box 27008  
 Fort Worth, TX 76127-0008

RE: Approval of Final RCRA Facility Investigation Report, dated July 2000  
 No Further Action Request for Waste Accumulation Areas  
 SWMUs 16, 33, 34, 39, 42, and AOCs 6 and 15  
 NAS/JRB Carswell AFB, Fort Worth, TX  
 TNRCC Solid Waste Registration No. 65004  
 TNRCC Hazardous Waste Permit No. HW-50289  
 EPA ID No. TX0571924042

Dear Mr. Dodyk:

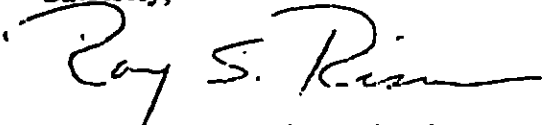
The Texas Natural Resource Conservation Commission (TNRCC) received your No Further Action Request Report for SWMUs 16, 33, 34, 39, 42, and AOCs 6 and 15, dated July 21, 2000. The TNRCC has completed a review of the RCRA Facility Investigation (RFI) Report, which indicated that RFI activities for these units are completed and No Further Action (NFA) is necessary as there was no evidence of a release from either of these units. Based on the information contained in the Report, it appears that the RFI has been appropriately completed and NFA status is warranted. The aforementioned SWMUs and AOCs are released from further Corrective Action requirements. Please note that these units may not be removed from the Carswell hazardous waste permit; however, upon renewal, which is due in the first part of 2001, Carswell should indicate the RFI completion and NFA status of each unit. The public notice requirements for final Corrective Action decisions on these units should be addressed in the renewal public notice.

Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If AFCEE fails to comply with these requirements, the burden remains upon AFCEE to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your report and conduct an inspection of the units.

Mr. Dodyk  
Page 2  
November 20, 2000

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Arlington. The TNRCC Solid Waste Registration Number, Hazardous Waste Permit Number, EPA ID Number, and the number of the SWMUs and AOCs should be referenced in all submittals.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Mr. Joe Dunkle, Remedial Program Manager, HQ AFCEE/ERD  
3207 North Road, Brooks AFB, TX 78235  
Mr. Gary W. Miller, Federal Facility Team, EPA Region VI Office (6PD-NB) - Dallas  
Mr. Sam Barrett, Waste Program Manager, TNRCC Region 4 Office - Arlington

Robert J. Huston, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
John M. Baker, *Commissioner*  
Jeffrey A. Saltas, *Executive Director*



**TEXAS NATURAL RESOURCE CONSERVATION COMMISSION**

*Protecting Texas by Reducing and Preventing Pollution*

March 5, 2001

Mr. Charles Pringle  
Team Chic/BEC  
HQ-AFCEP/ERR  
3207 North Road, B-532  
Brooks AFB, TX 78235-5303

Re: Carswell Air Force Base  
TNRCC Solid Waste Registration No. 65004  
Hazardous Waste Permit No. HW-50289  
**Review of Draft RFI for SWMUs 22, 23, 24 and 25.**  
Approval - Risk Reduction Standard No. 2 - Soil

Dear Mr. Pringle:

The Texas Natural Resource Conservation Commission (TNRCC) has completed the review of the *Draft RCRA Facility Investigation Solid Waste Management Units 22, 23, 24 and 25 NAS Fort Worth JRB, Texas Volumes I and II* (RFI Report) dated September 2000 and received by the TNRCC on September 14, 2000. The TNRCC also reviewed comments received from EPA Region 6 dated November 9, 2000. Solid Waste Management Units (SWMUs) 22, 23, 24 and 25 are identified in the RFI Report as four former landfills comprising approximately 22.75 acres and active for various periods of time from 1956 to 1975. The landfills reportedly received various quantities of domestic waste, construction debris, medical waste and flightline area waste. The RFI Report indicates that SWMU 24 received drums of cleaning solvents, tetrachloroethylene sludge, small quantities of unidentified waste, and may have received live ordnance.

The RFI Report contains documentation indicating that closure of contaminated soil associated with SWMUs 22, 23, 24 and 25 have attained closure under 30 TAC §335.555 RRS 10.2 Closure/Remediation to Health-Based Standards and Criteria, such that no post-closure care or engineering or institutional control measures are required. Ground water contamination detected by monitoring wells installed as part of this RFI appears to be associated with a regional chlorinated solvent plume emanating from Air Force Plant (AFP) 4. AFP 4 has been listed on the National Priority List (NPL), a.k.a. Superfund, and ground water contamination associated with releases from AFP 4 is being addressed via a Superfund Record of Decision (ROD) signed in 1996.

Therefore, based upon the information contained in the RFI Report and other information available to staff, it appears that the closure of contaminated soil associated with SWMUs 22, 23, 24 and 25

**BEST AVAILABLE  
COPY**

715 213

Mr. Charles Pringle

Page 2

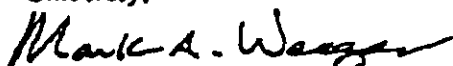
March 5, 2001

has attained closure/remediation to RRS No. 2. As specified in §335.56), AFBCA must submit proof of deed certification to the TNRCC within ninety (90) days from the date of this letter. Upon acceptance of the proof of deed certification, the TNRCC will transmit a final letter releasing AFBCA from post-closure care responsibilities for contaminated soil associated with SWMLs 22, 23, 24 and 25.

Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon AFBCA to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your RFI Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-2360 or via e-mail: mweegar@tnrcc.state.tx.us. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Arlington. The TNRCC Solid Waste Registration Number and Unit Name should be referenced in all submittals.

Sincerely,

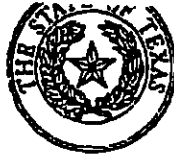


Mark A. Weegar, Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

MW:mw

cc: Mr. Alvin Brown, AFBCA/ROL, Austin, TX  
Mr. Gary Miller, U.S. EPA Region 6, Dallas, TX.(GPD-NB)  
Mr. Tim Sewell, TNRCC Region 4 - Arlington (MC-R4)  
Ms. Luda Voskov, TNRCC Superfund Cleanup Section (MC-143)  
Mr. Jerry Allred, TNRCC MSW Permits Section (MC-124)

Robert J. Huston, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
John M. Baker, *Commissioner*  
Jeffrey A. Saitas, *Executive Director*



715 214

## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

March 7, 2001

Mr. Michael Dodyk  
Restoration Team Chief  
HQ AFCEE/ERD  
P.O. Box 27008  
Fort Worth, TX 76127-0008

RE: Approval of Final Site Investigation Report, dated December 2000  
No Further Action Request for AOC-17 & 18 - RRS 1  
NAS Fort Worth JRB, Carswell AFB, Texas  
TNRCC Solid Waste Registration No. 65004  
TNRCC Hazardous Waste Permit No. HW-50289  
EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your Final Report and No Further Action Request for AOC 17 & 18, dated December 11, 2000. The TNRCC has completed a review of the Report and Request referenced above. Based on the information provided, it appears that there is no evidence of a release from AOC 17 & 18; therefore, No Further Action status is warranted. AOC 17 & 18 are hereby released from RFI requirements.

During the upcoming permit renewal AFCEE does not need to include these areas in the Corrective Action portion of the permit, as these were Carswell voluntary areas, never included in the original permit or any of the TNRCC letters. Please update your Notice of Registration (NOR) as appropriate. Any correspondence concerning the NOR should be mailed to the TNRCC Registration and Reporting Section at Mail Code MC-129, and include a copy of this letter.

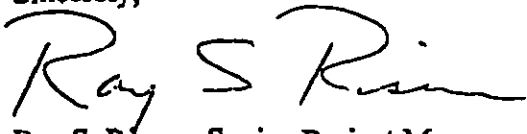
Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If AOC 17 or 18 fail to comply with these requirements, the burden remains upon AFCEE to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Reports and conduct an inspection of the areas.



Mr. Dodyk  
Page 2  
March 7, 2000

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Arlington. The TNRCC Solid Waste Registration Number and AOC Nos. should be referenced in all submittals.

Sincerely,

A handwritten signature in cursive script that reads "Ray S Rysner".

Ray S. Rysner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Mr. Don Ficklen, Remedial Program Manager, HQ AFCEE/ERD  
3207 North Road, Brooks AFB, TX 78235  
Mr. Gary W. Miller, Federal Facility Team, EPA Region VI Office - Dallas  
Mr. Sam Barrett, Waste Program Manager, TNRCC Region 4 Office - Arlington

Robert J. Huston, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
John M. Baker, *Commissioner*  
Jeffrey A. Saitas, *Executive Director*



715 216

## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

March 9, 2001

Mr. Michael Dodyk  
Restoration Team Chief  
HQ AFCEE/ERD  
P.O. Box 27008  
Fort Worth, TX 76127-0008

RE: Approval of Final Closure Report, dated January 19, 2001  
No Further Action Request for SWMU 45 - RRS 1  
NAS Fort Worth JRB, Carswell AFB, Texas  
TNRCC Solid Waste Registration No. 65004  
TNRCC Hazardous Waste Permit No. HW-50289  
EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your Final Closure Report and No Further Action Request for SWMU 45, dated January 19, 2001. The TNRCC has completed a review of the Report and Request referenced above. Based on the information provided, it appears that there is no evidence of a release or that SWMU 45 ever existed; therefore, No Further Action status is warranted. SWMU 45 is hereby released from RFI requirements.

During the upcoming permit renewal, AFCEE should include this unit in the Corrective Action portion of the permit, but may include a status statement that the RFI has been completed and has been approved NFA. Please update your Notice of Registration (NOR) as appropriate. Any correspondence concerning the NOR should be mailed to the TNRCC Registration and Reporting Section at Mail Code MC-129.

Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If SWMU 45 fails to comply with these requirements, the burden remains upon AFCEE to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Report and conduct an inspection of the unit.



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

March 23, 2001

Mr. Michael Dodyk  
Restoration Team Chief  
HQ AFCEE/ERD  
P.O. Box 27008  
Fort Worth, TX 76127-0008

RE: Approval of RCRA Facility Investigation Report, dated December, 2000  
RRS 1 and No Further Action Request for Oil/Water Separators  
at Buildings 1101, 1320, 1423, 1656, and 4160  
NAS Fort Worth JRB, Carswell AFB, Texas  
TNRCC Solid Waste Registration No. 65004  
TNRCC Hazardous Waste Permit No. HW-50289  
EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your RCRA Facility Investigation (RFI) Report and No Further Action Request for the Oil/Water Separators associated with Buildings 1101, 1320, 1423, 1656, and 4160, submitted December 22, 2000. The TNRCC has completed a review of the Report and Request referenced above. Based on the information provided, it appears that there is no compelling evidence of a release from either of the five Oil/Water Separators. Therefore, No Further Action status is warranted, and each of the five Oil/Water Separators are hereby released from RFI requirements.

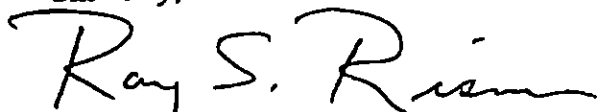
During the upcoming permit renewal, AFCEE does not need to include these units in the Corrective Action portion of the permit, as they were not in the original permit or subsequent letters requiring an RFI. Please update your Notice of Registration (NOR) as appropriate. Any correspondence concerning the NOR should be mailed to the TNRCC Registration and Reporting Section at Mail Code MC-129.

Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If SWMU-45 fails to comply with these requirements, the burden remains upon AFCEE to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Report and conduct an inspection of the unit.

Mr. Dodyk  
Page 2  
March 23, 2000

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Arlington. The TNRCC Solid Waste Registration Number and SWMU No. should be referenced in all submittals.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Mr. Don Ficklen, Remedial Program Manager, HQ AFCEE/ERD  
3207 North Road, Brooks AFB, TX 78235  
Mr. Gary W. Miller, Federal Facility Team, EPA Region VI Office - Dallas  
Mr. Sam Barrett, Waste Program Manager, TNRCC Region 4 Office - Arlington



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

**MAY 21 2001**

Ray Risner  
Corrective Action Section  
Remediation Division, MC-127  
Texas Natural Resource Conservation Commission  
P. O. Box 13087  
Austin, TX 78711-3087

Dear Mr. Risner:

I have completed a review of the following document, "Final RCRA Facility Investigation Report For Buildings 1015, 1027, 1060, 1064, 1190, 1191, 1194, 1414, 1602, 1643, 3358, 4146, and 4210, NAS Fort Worth JRB, Texas." The following comment is provided:

Section 9, Page 19 of 25 - The report indicates the detection of Cis-1,2-DCE (0.00069 mg/L) and vinyl chloride (0.0022 mg/L) in the groundwater sample from WITCA031 are related to the Air Force Plant 4 TCE groundwater plume. However, the plume map received during the last BCT meeting, dated May 7, 2001 does not indicate the plume is close to this area. Additional monitoring wells were installed, but only sampled for arsenic, barium and manganese. Additional investigation of the potential groundwater contamination should be completed

Please contact me at (214)665-8306 should you wish to discuss this further.

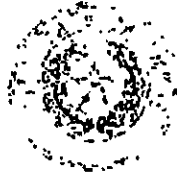
Sincerely,

A handwritten signature in black ink, which appears to read "Gary W. Miller", is written over a horizontal line.

Gary W. Miller, P.E.  
Senior Project Manager  
Base Closure Team

cc: Mark Weegar, TNRCC

Robert J. Huston, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
John M. Baker, *Commissioner*  
Jeffrey A. Saltas, *Executive Director*



**BEST AVAILABLE  
COPY**

715 220

## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

June 18, 2001

Mr. Michael R. Dodyk, P. E.  
Restoration Team Chief  
HQ AFCEE/ERD  
P.O. Box 27008  
Fort Worth, TX 76127-0008

RE: Approval of Final RCRA Facility Investigation Report, dated March 2001  
Final Closure and No Further Action Approval for SWMUs 11 and 36 - RRS 1  
Conditional Approval for SWMUs 32 and 51 - RRS 2  
NAS Fort Worth JRB, Carswell AFB, Texas  
TNRCC Solid Waste Registration No. 65004  
TNRCC Hazardous Waste Permit No. HW-50289  
EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your Final RCRA Facility Investigation (RFI) Report for SWMUs 11, 32, 36 and 51, submitted March 23, 2001, indicating that investigation activities have been completed in accordance with the HSWA Corrective Action requirements of the RCRA permit. The RFI is approved for these four Waste Accumulation Areas. No Further Action and final closure under TNRCC Risk Reduction Standard (RRS) No. 1, pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S are approved for SWMUs 11 and 36. Conditional approval for closure under TNRCC Risk Reduction Standard (RRS) No. 2, pursuant to Title 30 TAC Chapter 335 Subchapters A and S is given for SWMUs 32 and 51 (see required conditions below).

In order to attain RRS No. 1, there must be no evidence of a release of any waste, or all industrial solid waste and municipal hazardous waste and waste residues must be removed or decontaminated from affected media (i.e., soil, surface water, groundwater, air) to naturally occurring background levels or the Practical Quantitation Limits (PQL), provided that the person demonstrates that lower quantitation limits are not possible when PQLs are greater than background.

In order to attain RRS No. 2, all industrial solid waste and municipal hazardous waste and waste residues must be at or removed or decontaminated to health based standards and criteria. Contaminants allowed to remain in place in media of concern (i.e., soil, ground water, surface water, air) must not exceed the health based clean up levels as specified in 30 TAC §335.556.

The TNRCC has completed a review of the Final RFI Report. Based on the information contained in the Final RFI Report and other information available to staff, it appears that the investigation at SWMUs 11 and 36 does not show evidence of a release. These SWMUs have therefore attained RRS No. 1 and are released from any further HSWA Corrective Action and from deed certification/ recordation and post-closure care requirements. Please submit a written request to the TNRCC Registration and Reporting Section at Mail Code MC-129 to update your Notice of Registration (NOR) with a copy of this letter as an attachment.

Mr. Michael R. Dodyk

Page 2

June 18, 2001

In addition, the Final RFI Report contains documentation indicating that the investigation at SWMUs 32 and 51 has revealed that soils remain in-place at RRS 2 levels. Therefore, these SWMUs have attained RRS No. 2 such that no post-closure care or engineering control measures are required. The Final Report did not contain a document proposed to fulfill the requirements of 30 TAC §335.560(b) relating to deed certification. Please submit draft deed certification language with all the appropriate attachments, including a map(s) illustrating the area(s) to be deed certified. Once the draft language has been approved, the TNRCC will direct Carswell, as specified in §335.560, to submit proof of deed certification to the TNRCC within ninety (90) days from the date of that approval letter. Upon acceptance of the proof of deed certification, the TNRCC will transmit a final letter releasing Carswell from post-closure care responsibilities for SWMUs 32 and 51.

Carswell must public notice the results of the RFI and approval of a RRS 1 closure and No Further Action for SWMUs 11 and 36. This may be accomplished at this time or concurrent with the next permit modification or renewal. Carswell may not remove these SWMUS from the permit but may include appropriate status language.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon Carswell to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Final Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Duncanville. The TNRCC Solid Waste Registration No. and SWMU No(s) should be referenced in all submittals.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Waste Program Manager, TNRCC Region 4 Office, Duncanville



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

July 18, 2001

Mr. Michael Dodyk  
Restoration Team Chief  
HQ AFCEE/ERD  
P.O. Box 27008  
Fort Worth, TX 76127-0008

RE: Approval of RCRA Facility Investigation Report, dated March, 2001  
Risk Reduction Standard No. 1 and No Further Action Request  
Stormwater Drainage System *SWMU 53*  
NAS Fort Worth, Carswell AFB, Texas  
TNRCC Solid Waste Registration No. 65004  
TNRCC Hazardous Waste Permit No. HW-50289  
EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your RCRA Facility Investigation (RFI) Report and No Further Action Request for SWMU 53, submitted March 27, 2001. The TNRCC has completed a review of the Report and Request referenced above. Based on the information provided, it appears that there is no compelling evidence of a release from the Stormwater Drainage System. Therefore, No Further Action (NFA) status is warranted, and SWMU 53 is hereby released from the Corrective Action requirements of the Hazardous & Solid Waste Amendments (HSWA) to RCRA.

Although this was one of the units listed in the TNRCC letter, dated March 2, 1995, requiring HSWA Corrective Action, the RFI has been completed and NFA has been granted. AFCEE does not need to include this unit in the HSWA Corrective Action portion of the permit, during the permit renewal. Please update your Notice of Registration (NOR) as appropriate. Any correspondence concerning the NOR should be mailed to the TNRCC Registration and Reporting Section at Mail Code MC-129.

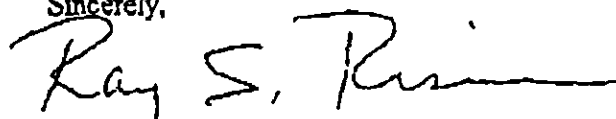
Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If SWMU 53 fails to comply with these requirements, the burden remains upon AFCEE to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Report and conduct an inspection of the unit.



Mr. Lodyk  
Page 2  
July 18, 2000

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Arlington. The TNRCC Solid Waste Registration Number and SWMU No. should be referenced in all submittals.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Mr. Don Ficklen, Remedial Program Manager, HQ AFCEE/ERD  
3207 North Road, Brooks AFB, TX 78235  
Mr. Gary W. Miller, Federal Facility Team, EPA Region VI Office - Dallas  
Mr. Sam Barrett, Waste Program Manager, TNRCC Region 4 Office - Arlington

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 John M. Baker, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

September 17, 2001

Mr. Michael Dodyk  
 Restoration Team Chief  
 HQ AFCEE/ERD  
 P.O. Box 27008  
 Fort Worth, TX 76127-0008

**CERTIFIED MAIL #2363**  
**RETURN RECEIPT REQUESTED**

RE: Partial Approval of Final RCRA Facility Investigation (RFI) Report, dated April 2001  
 Approval for RRS 1 for Oil/Water Separators (O/WSs) in Bldgs. 1643, 3358 and 4146  
 Notice of Deficiency for RRS 2 for O/WSs in Bldgs. 1015, 1027, 1050, 1064, 1190, 1191,  
 1194, 1414, 1602 and 4210  
 NAS Fort Worth JRB, Carswell AFB, Texas  
 TNRCC Solid Waste Registration No. 65004  
 TNRCC Hazardous Waste Permit No. HW-50289  
 EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your Final RFI Report for the O/WSs listed above, submitted by letter dated May 8, 2001. Based on the information provided, the TNRCC approves the investigation, conclusion and request for a No Further Action and a Risk Reduction Standard (RRS) No. 1 closure of O/WSs in Bldgs. 1643, 3358 and 4146 listed above [O/WS in Bldg. 1643 is solid waste management unit (SWMU) 40, and O/WSs in Bldgs. 3358 and 4146 are part of SWMU 66]. It appears that there is no compelling evidence of a release from either of these units; therefore, No Further Action status is warranted, and the units are hereby released from any further RFI requirements.

During the upcoming permit renewal, AFCEE may not exclude these units from the Corrective Action portion of the permit, but should include a status statement that the RFI has been completed and has been approved NFA. Please update your Notice of Registration (NOR) as appropriate. Any correspondence concerning the NOR should be mailed to the TNRCC Registration and Reporting Section at Mail Code MC-129.


Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If any of these units fail to comply with these requirements, the burden remains upon AFCEE to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Report and conduct an inspection of the any of the units.

Mr. Dodyk  
Page 2  
September 17, 2001

Also, based upon the information provided, the TNRCC can not, at this time, approve the RFI, conclusion or request for closure under RRS No. 2 for the *remaining* O/WSs in Bldgs. 1015 (SWMU 47), 1027 (SWMU 44), 1190 (SWMU 52), 1191 (SWMU 37), 1194 (SWMU 35), 1414 (SWMU 41), 1060 (AOC 11), 1064 (AOC 10), 4210 (AOC 12), and 1602 (part of SWMU 66). The text of the Report and especially the Conclusion portion of the text for each unit failed to identify a clear reason for selecting RRS 2 for that unit and which constituents of concern (COCs) were applicable. It appeared in most, if not all cases, that claims of extreme but true background and no clear pattern of contamination were used in the Conclusion argument. The TNRCC does not have a problem with a facility using these reasons to support a no release or RRS No. 1 position taken. Please revise the appropriate portions of the Report and clearly state your reasoning for the RRS 2 selection and for the appropriate COCs and media. Please revise maps appropriately as necessary. Finally, it appears from the data presented that groundwater samples collected from several of the units contain TCE or daughter products. The TNRCC is well aware of the TCE plume under the Carswell site; however, the latest TCE maps do not show that the locations of O/WSs in Bldgs 1064, 1191, 1194 and 4210 are above the identified plume (please see enclosed EPA comment letter dated May 21, 2001). Please explain and/or provide updated TCE plume maps for this revision and all other appropriate reports.

Please submit an **original and one copy** of an appropriately revised portion of the Report to the Corrective Action Section at Mail Code MC-127 within 90 days of the date of this letter with an additional copy submitted to the TNRCC Region 4 Office in Arlington. The TNRCC Solid Waste Registration Number, TNRCC Hazardous Waste Permit Number, EPA ID Number, and appropriate SWMU Nos. or O/WS Bldg. Nos. should be referenced in all submittals. Questions concerning this letter should be directed to me at (512) 239-2333.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Mr. Don Ficklen, Remedial Program Manager, HQ AFCEE/ERD  
3207 North Road, Brooks AFB, TX 78235  
Mr. Gary W. Miller, Federal Facility Team, EPA Region VI Office - Dallas  
Waste Program Manager, TNRCC Region 4 Office - Arlington

Enclosure

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 John M. Baker, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

October 4, 2001

Mr. Michael R. Dodyk, P. E.  
 Restoration Team Chief  
 HQ AFCEE/ERD  
 P.O. Box 27008  
 Fort Worth, TX 76127-0008

RE: Approval of Final RCRA Facility Investigation Report, dated June 2001  
 Area of Concern (AOC) 13  
 NAS Fort Worth JRB, Carswell AFB, Texas  
 TNRCC Solid Waste Registration No. 65004  
 TNRCC Hazardous Waste Permit No. HW-50289  
 EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your Final RCRA Facility Investigation (RFI) Report for AOC 13, submitted by letter dated June 4, 2001. The Final RFI Report indicates that investigation activities have been completed in accordance with the HSWA Corrective Action requirements of the RCRA permit, and contends that closure under TNRCC Risk Reduction Standard (RRS) No. 2, pursuant to Title 30 TAC Chapter 335 Subchapters A and S can be met.

In order to attain RRS No. 2, all industrial solid waste and municipal hazardous waste and waste residues must be at or removed or decontaminated to health based standards and criteria. Contaminants allowed to remain in place in media of concern (i.e., soil, ground water, surface water, air) must not exceed the health based clean up levels as specified in 30 TAC §335.556.

The TNRCC has completed a review of the Final RFI Report. Based on the information contained in the Final RFI Report and other information available to staff, it appears that the investigation at AOC 13 is complete and indicates that soils and groundwater remain in-place at RRS 2 levels. Therefore, the TNRCC approves the report and its recommendations and agrees that AOC 13 may attain a RRS No. 2 closure such that no post-closure care or engineering control measures are required. It also appears that the appropriate constituents of concern (COCs) and the appropriate area of the site is proposed for deed certification. However, the Final RFI Report did not contain a document proposed to fulfill the requirements of 30 TAC §335.560(b) relating to deed certification. Please submit draft deed certification language (following the example set forth in 30 TAC 335.569 Appendix III) with all the appropriate attachments, including a map(s) illustrating the area(s) to be

Mr. Michael R. Dodyk

Page 2

October 4, 2001

deed certified, and a list of the COCs with maximum concentrations for each environmental media. The TNRCC will review the draft deed certification language and direct Carswell to public notice the results of the RFI and proposal of the RRS No. 2 closure for AOC 13 (example public notice language will be provided). Carswell will be responsible for conducting appropriate public notice and providing proof of such. Once the comment period has passed, with no dissenting comments, the TNRCC can approve the public notice and direct Carswell to proceed with deed certification. As specified in §335.560, Carswell will be required to submit proof of deed certification to the TNRCC within ninety (90) days from the date of that approval letter. Upon acceptance of the proof of deed certification, the TNRCC will transmit a final letter approving the RRS No. 2 closure and releasing Carswell from post-closure care responsibilities for AOC 13.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon Carswell to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Final RFI Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Fort Worth. The TNRCC Solid Waste Registration No. and SWMU No(s). should be referenced in all submittals.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II/ Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Waste Program Manager, TNRCC Region 4 Office, Fort Worth

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 John M. Baker, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

October 5, 2001

Mr. Michael Dodyk  
 Air Force Center for Environmental Excellence  
 3207 North Road  
 Brooks AFB, TX 78235-5363

Re: Leaking Petroleum Storage Tank (LPST) Case Closure of Subsurface Release of Petroleum Hydrocarbons at the Fort Worth Naval Air Station Joint Reserve Base, Intersection of South Apron and Alert Apron taxiways, Fort Worth (Tarrant County), Texas (LPST ID No. 108711, 108712, and 108713 - Priority 4.1 - Facility ID No.9696), R-4

Dear Mr. Dodyk:

This letter confirms the completion of corrective action requirements for the release incident at the above-referenced facility. Although contaminant concentrations are above Plan A Target screening levels, the following criteria were used as justification for site closure:

- There is no beneficial use of the shallow groundwater and no water wells were found within a ½ mile radius of the site;
- Non-aqueous phase liquids (NAPL) have been present at the site; however, NAPL concentrations has been less than .01 feet since April 2000.
- Depth to impacted soil is greater than 15 feet; therefore, below where normal construction activities would take place.
- The site is an industrial facility with plans to remain as such.

Based upon the submitted information and with the provision that the documentation provided to this agency was accurate and representative of site conditions, we accept your conclusion and recommendation that the site has met closure requirements. No further corrective action will be necessary. Please note that financial assurance must be maintained for all operational storage tanks at this site. Please be aware that case closure is based on identified exposure pathways and that any remaining contaminant levels and potential exposure pathways should be evaluated when conducting any future soil excavation or construction activities at this site. Please ensure that any wastes generated from these activities are handled in compliance with all applicable regulations.

Mr. Michael Dodyk  
Page 2  
October 5, 2001

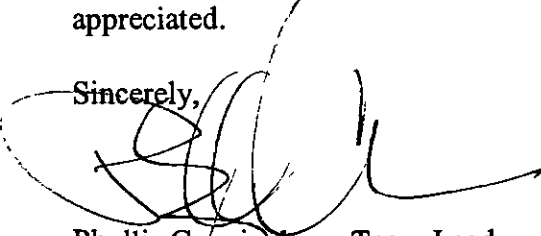
Please be advised that all monitor wells which are not now in use and/or will not be used in the next 180 days must be properly plugged and abandoned pursuant to Chapter 32.017 of the Texas Water Code and in accordance with Title 16, Texas Administrative Code (TAC), Section 76.1004. A State of Texas Plugging Report (Form No. TNRCC-0055) is required to be submitted to the Water Well Drillers Section of the Texas Department of Licensing and Regulation, P.O. Box 12157, Capitol Station, Austin, Texas 78711, within thirty (30) days of plugging completion. If you have any questions regarding the future use of an existing monitor well, please contact the Texas Department of Licensing and Regulation at 512/463-7880 or 800/803-9202.

If any monitor well plugging or other necessary site restoration activities will be performed to complete site closure, complete a *Final Site Closure Report* and submit the report to both the local TNRCC Regional Field Office and the Central Office in Austin to document actual site closure. For sites eligible for reimbursement through the Petroleum Storage Tank Remediation Fund, written preapproval should be obtained prior to initiation of site closure activities. Reimbursement claims for activities that are not preapproved will not be paid until all claims for preapproved work are processed and paid.

Please note that the *Final Site Closure Report*, if necessary, will be the last submittal associated with this case. This letter signifies the completion of corrective action associated with the release. No subsequent TNRCC correspondence will be issued in response to the *Final Site Closure Report*.

Should you have any questions, please contact Ms. Paula Siems of my staff at 512/239-2200. **Please reference the LPST ID Number when making inquiries.** Your cooperation in this matter has been appreciated.

Sincerely,



Phyllis Cunningham, Team Leader  
PST - Responsible Party Remediation Section  
Petroleum Storage Tank Division

PRS/jly  
108711.fin

Robert J. Husion, *Chairman*  
 R. B. "Tulph" Marquez, *Commissioner*  
 John M. Baker, *Commissioner*  
 Jeffrey A. Saltas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

November 1, 2001

Mr. Michael Dodyk  
 Air Force Center for Environmental Excellence  
 3207 North Road  
 Brooks Air Force Base, Texas 78235-5363

Re: Leaking Petroleum Storage Tank (LPST) Case Closure of Subsurface Release of the Fort Worth Naval Air Station Joint Reserve Base, Desert Storm Road and Military Parkway, Fort Worth (Tarrant County), Texas  
 (LPST ID No. 104819 - Priority 4.1 - Facility ID No. 0009696 ), R-4

Dear Mr. Dodyk :

This letter confirms the completion of corrective action requirements for the release incident at the above-referenced facility. Although contaminant concentrations are above Plan A Target screening levels, the following criteria were used as justification for site closure:

- Although maximum groundwater concentrations exceed Category III target levels, the plume appears to be stable;
- Depth to groundwater is approximately 15-16 feet; therefore, below where normal construction activities would take place.
- Although maximum contaminant concentrations in soils exceed soil to groundwater concentrations, the groundwater pathway is not of concern;
- Although maximum soil concentrations exceed health-based target levels, soils are currently inaccessible beneath an impervious concrete cover, and the cover is expected to remain in place;

Based upon the submitted information and with the provision that the documentation provided to this agency was accurate and representative of site conditions, we accept your conclusion and recommendation that the site has met closure requirements. No further corrective action will be necessary.



Mr. Michael Dodyk

Page 2

November 1, 2001

Please note that financial assurance must be maintained for all operational storage tanks at this site. Please be aware that case closure is based on identified exposure pathways and that any remaining contaminant levels and potential exposure pathways should be evaluated when conducting any future soil excavation or construction activities at this site. Please ensure that any wastes generated from these activities are handled in compliance with all applicable regulations.

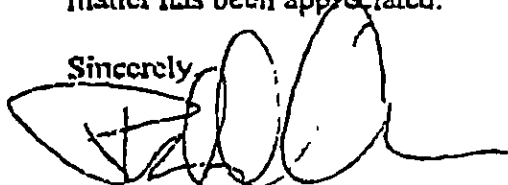
Please be advised that all monitor wells which are not now in use and/or will not be used in the next 180 days must be properly plugged and abandoned pursuant to Chapter 32.017 of the Texas Water Code and in accordance with Title 16, Texas Administrative Code (TAC), Section 76.1004. A State of Texas Plugging Report (Form No. TNRCC-0055) is required to be submitted to the Water Well Drillers Section of the Texas Department of Licensing and Regulation, P.O. Box 12157, Capitol Station, Austin, Texas 78711, within thirty (30) days of plugging completion. If you have any questions regarding the future use of an existing monitor well, please contact the Texas Department of Licensing and Regulation at 512/463-7880 or 800/803-9202.

If any monitor well plugging or other necessary site restoration activities will be performed to complete site closure, complete a *Final Site Closure Report* and submit the report to the Central Office in Austin to document actual site closure. For sites eligible for reimbursement through the Petroleum Storage Tank Remediation Fund, written preapproval should be obtained prior to initiation of site closure activities. Reimbursement claims for activities that are not preapproved will not be paid until all claims for preapproved work are processed and paid.

Please note that the *Final Site Closure Report*, if necessary, will be the last submittal associated with this case. This letter signifies the completion of corrective action associated with the release. No subsequent TNRCC correspondence will be issued in response to the *Final Site Closure Report*.

Should you have any questions, please contact Ms. Paula Siems Jackson of my staff at 512/239-2200. Please reference the LPST ID Number when making inquiries. Your cooperation in this matter has been appreciated.

Sincerely,



Phyllis Cunningham, Team Leader  
Petroleum Storage Tank - Responsible Party Remediation Section  
Remediation Division

PCC/PRS/jdm  
104819.fiu

Robert J. Huston, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
Kathleen Hartnett White, *Commissioner*  
Jeffrey A. Saitas, *Executive Director*



715 232

## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

December 28, 2001

Mr. Michael R. Dodyk, P. E.  
Restoration Team Chief  
HQ AFCEE/ERD  
P.O. Box 27008  
Fort Worth, TX 76127-0008

RE: Conditional Approval of Final RCRA Facility Investigation Report, dated November 2001  
~~SWMU 26~~ - Risk Reduction Standard No. 2  
NAS Fort Worth JRB, Carswell AFB, Texas  
TNRCC Solid Waste Registration No. 65004  
TNRCC Hazardous Waste Permit No. HW-50289  
EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your Final RCRA Facility Investigation (RFI) Report for SWMU 26, submitted November 12, 2001. The RFI Report indicates that investigation activities have been completed in accordance with the HSWA Corrective Action requirements of the RCRA permit. It has demonstrated full extent determination and proposes that SWMU 26 can close under TNRCC Risk Reduction Standard (RRS) No. 2, pursuant to Title 30 TAC Chapter 335 Subchapters A and S.

In order to attain RRS No. 2, all industrial solid waste and municipal hazardous waste and waste residues must be at or removed or decontaminated to health based standards and criteria. Contaminants allowed to remain in place in media of concern (i.e., soil, ground water, surface water, air) must not exceed the health based clean up levels as specified in 30 TAC §335.556.

The Final RFI Report contains documentation indicating that the investigation at SWMU 26 has revealed that soils remain in-place at RRS 2 levels. The TNRCC conditionally approves the RFI Report with the proposal for closure under RRS No. 2 such that no post-closure care or engineering control measures are required. However, the Final Report did not contain a document proposed to fulfill the requirements of 30 TAC §335.560(b) relating to deed certification. Please submit draft deed certification language with all the appropriate attachments, including a map(s) illustrating the area(s) to be deed certified. Once the draft language has been approved, the TNRCC will direct Carswell, as specified in §335.560, to submit proof of deed certification to the TNRCC within ninety (90) days from the date of that approval letter.

Additionally, the TNRCC can not issue a final determination until the public has had an opportunity to provide comment on the investigation results and the proposed corrective measure. Carswell shall submit the required draft deed certification language and then must notify the public of the approved RFI Report and the proposed corrective measure (RRS 2 and deed certification) pursuant to the corrective action program. An example of the proper public notice language is enclosed. Carswell should proceed with the following steps:

Mr. Dodyk  
Page 2  
December 28, 2001

1. Publish the notice (completed with the correct information) once in its entirety, at your expense, in a newspaper of general circulation which is regularly published or circulated in the county(ies) or the geographical location of the facility;
2. Once the notice is published, please read it carefully and notify us immediately if it contains any errors or omissions that require the corrected version to be re-published; and,
3. Mail, immediately upon publication, an original and one (1) copy of the following items to the TNRCC's Corrective Action Section (MC-127) and one copy to the Waste Program Manager, TNRCC Region 4 Office, 2301 Gravel Dr., Fort Worth, TX 76118-6951.
  - a. a clipping of the published notice; and,
  - b. the original sworn affidavit from the newspaper giving the date on which the notice was published, using the enclosed affidavit form.

If comments which require clarification are received during the comment period, the Executive Director of the TNRCC may request Carswell to hold a public meeting if such a meeting might clarify one or more issues concerning the proposed corrective measure(s). If no comments are received, then the TNRCC will issue a final determination.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon Carswell to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Final Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Fort Worth. The TNRCC Solid Waste Registration No. and SWMU No. should be referenced in all submittals.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Waste Program Manager, TNRCC Region 4 Office, Fort Worth

Enclosure 1 - Notice of Proposed Corrective Measures and Example of Publisher's Affidavit

OTNRCC letter dated December 28, 2001  
ENCLOSURE 1  
TNRCC SWR No. 65004

*Notice of Proposed Corrective Measures*

[Company], located at [street, city, county], has hereby given notice to the Texas Natural Resource Conservation Commission (TNRCC) of the proposed corrective measure(s) at [(closed / inactive / operating) Solid Waste Management Unit (s)] at the above location. The corrective measure(s) is [briefly describe the corrective measure(s) including deed certification requirements] and is based upon the results of the [ \*choose applicable documents from the list below ] dated [date(s) of document]. (Please include the date for both the RFI Rpt and the draft deed certification language submittal)

The purpose of this notice is to give members of the public the opportunity to submit written comments on the results of the investigation and the proposed corrective measure(s). Comments must be submitted within 60 days of the date of publication of this notice to: Manager, Corrective Action Section, Mail Code MC-127, Remediation Division, Texas Natural Resource Conservation Commission, P.O. Box 13087, Austin, TX 78711-3087. Copies of the [\*choose from the list below ] document(s) and the proposed corrective measure(s) are available for public inspection at the Austin office of the TNRCC located at Technical Park Center, Building D, Room 109, 12118 North IH-35, Austin, and the local TNRCC Regional Office located at [region office address].

---

\*

Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report

Proposed Corrective Measure(s) - Risk Reduction Standard No. 2 Draft Deed Certification Language

TNRCC letter dated December 28, 2001  
ENCLOSURE 1  
TNRCC SWR No. 65004

**PUBLISHER'S AFFIDAVIT**

**STATE OF TEXAS**

**COUNTY OF \_\_\_\_\_**

Before me this day personally appeared \_\_\_\_\_  
\_\_\_\_\_, the \_\_\_\_\_  
of the \_\_\_\_\_, a  
newspaper which is regularly published or circulated in  
\_\_\_\_\_ County, Texas, who being by me duly sworn  
deposes and says:

That the foregoing notice was published in said  
newspaper on \_\_\_\_\_, 200\_\_.

\_\_\_\_\_  
Subscribed and sworn to before me this the \_\_\_\_\_ day  
of \_\_\_\_\_, 200\_\_.

\_\_\_\_\_  
Notary in and for \_\_\_\_\_

\_\_\_\_\_ County, Texas

Robert J. Huston, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
Kathleen Hartnett White, *Commissioner*  
Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

April 2, 2002

Mr. Joseph Dunkle  
USAF  
Air Force Center for Environmental Excellence  
3207 North Road  
Brooks AFB, Texas 73235

Re: Release Determination Activities at the Naval Air Station Fort Worth Joint Reserve Base, Bldg. 1518,  
NAS Fort Worth JRB (Tarrant County), Texas  
(Facility ID No. 0009696); R- 4

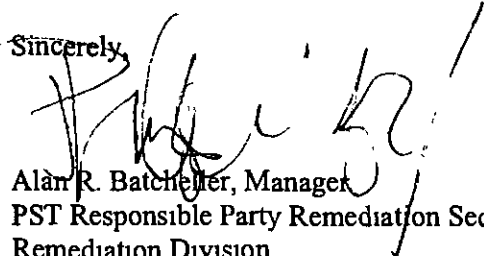
Dear Mr. Dunkle:

We have completed our review of the investigation and release determination activities conducted at the above-referenced facility as provided in the report(s) submitted to our Office. Based upon the information submitted to us, we concur with the conclusion of your Corrective Action Specialist (CAS) or Licensed On-Site Supervisor (LOSS) that there does not appear to have been a release in excess of action levels from the storage tank system(s) where the data were gathered. With the provision that the submitted information is correct and representative of actual site conditions, as attested to by your CAS or LOSS, no further action is required regarding this release determination activity described in the Release Determination Report dated June 1, 1999. This letter does not address any additional environmental data collected at the above-referenced site.

Please note that there may be additional requirements regarding any existing underground or aboveground storage tanks at this site, including tank registration and technical standards provisions.

Should you have any questions, please contact Ms. Paula Jackson of my staff at 512/239-2200. Your cooperation in this matter has been appreciated.

Sincerely,

  
Alan R. Batchelder, Manager  
PST Responsible Party Remediation Section  
Remediation Division

ARB/PSJ/jdm  
0009696.nol

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 Kathleen Hartnett White, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

March 20, 2002

Mr. Michael Dodyk, P. E.  
 Restoration Team Chief  
 HQ AFCEE/ERD  
 P.O. Box 27008  
 Fort Worth, TX 76127-0008

RE: Approval of *Proof of Deed Certification for SWMU 32*, dated March 1, 2002  
 Risk Reduction Standard No. 2 Closure, Proof of Deed Certification  
 NAS/JRB Carswell AFB, Fort Worth, TX  
 TNRCC Solid Waste Registration No. 65004  
 TNRCC Hazardous Waste Permit No. HW-50289  
 EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received a letter dated March 1, 2002, containing proof of deed certification for SWMU 32. The certification states that contaminants remaining at the site have been investigated/remediated to meet non-residential (i.e. industrial/commercial) soil criteria under Risk Reduction Standard (RRS) No. 2 pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S.

In order to attain RRS No. 2, all industrial solid waste and municipal hazardous waste and waste residues must be removed or decontaminated to health based standards and criteria. Contaminants allowed to remain in place in media of concern (i.e., soil, ground water, surface water and air) must not exceed the health based clean up levels as specified in 30 TAC §335.556. A Final Report, documenting that investigation/remediation at the facility has attained RRS No. 2 such that no post-closure care or engineering control measures are required, was previously accepted by the TNRCC in our letter dated June 18, 2001.

After review of the proof of deed certification, it appears that the deed certification requirements of 30 TAC §335.560(b) and (c) have been completed. The TNRCC hereby releases the facility from post-closure care responsibilities for SWMU 32. The unit may not be removed from the permit, but the unit status may be updated.

Please submit a written request to the TNRCC Registration and Reporting Section at Mail Code MC-129 to update the status of this unit in your Notice of Registration (NOR) with a copy of this letter as an attachment.

Mr. Dodyk  
Page 2  
March 20, 2002

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual investigation/remediation fails to comply with these requirements, the burden remains upon the U. S. Air Force to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Final Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit an **original and one copy** of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Fort Worth, TX. The TNRCC Solid Waste Registration Number and Unit Description or Name should be referenced in all submittals.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Waste Program Manager, TNRCC Region 4 Office, Fort Worth, TX



Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 Kathleen Hartnett White, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

May 8, 2002

Mr. Don Ficklen  
 Restoration Team Chief  
 Air Force Center for Environmental Excellence (AFCEE)  
 3207 Sidney Brooks Road, B-532  
 Brooks AFB, TX 78235-5344

Re: Comments to *Final Basewide Groundwater Sampling and Analysis Program, 2000 Annual Report*, dated March 2000, and to *Final Basewide Groundwater Sampling and Analysis Program, April 2001 Semi-Annual Report*, dated September 2001  
 Naval Air Station Fort Worth JRB/Carswell AFB (NAS Ft. Worth)  
 TNRCC Industrial Solid Waste Registration No. 65004  
 TNRCC Hazardous Waste Permit No. HW-50289  
 EPA ID No. TX0571924042

Dear Mr. Ficklen:

The Texas Natural Resource Conservation Commission's (TNRCC) contractor, Texas Engineering Experiment Station's Corrective Action Technical Support Program (a.k.a., Texas Center for Applied Technology, TCAT) has reviewed the above referenced documents, submitted to the TNRCC Corrective Action Section. The lists of comments for these documents are provided by the Corrective Active Section for your information. Please perform any additional work necessary for continuation or completion of these projects. Carswell does not need to prepare a written response for the Corrective Action Section.

An original and two copies of any documentation, must be submitted to the TNRCC, at the letterhead address using mail code number MC-127. An additional copy should be submitted to the Waste Program Manager, TNRCC, Region 4 Office, 1101 East Arkansas Lane, Arlington, TX 76010-6499, and to Mr. Gary Miller, EPA, Region 6, Dallas, Tx. Should you need additional information concerning ENCLOSURE 1 or 2, or wish to discuss these comments, please call me at (512) 239-2333.

Sincerely,

A handwritten signature in cursive script that reads "Ray S. Risner".

Ray S. Risner, Senior Project Manager  
 Team II, Corrective Action Section  
 Remediation Division

RSR/rsr

cc: Mr. Mike Dodyk, AFCEE/ERD - Carswell, Ft. Worth  
 Mr. Charles Pringle, 3207 Sidney Brooks Rd., B-532, Brooks AFB, TX 78235-5344  
 Mr. Gary Miller, EPA Region 6, Dallas, TX (MC R04)  
 Waste Program Manager, TNRCC Region 4 Office, Arlington

Enclosure(s): ENCLOSURE 1 - TCAT Comments on 2000 Annual Report  
 ENCLOSURE 2 - TCAT Comments on 2001 Semi-Annual Report

**Final Basewide Groundwater Sampling and Analysis Program, 2000 Annual Report, NAS  
Fort Worth JRB, Texas, March 2001**

**REVIEW COMMENTS**

The following comments were generated from a review of the *Final Basewide Groundwater Sampling and Analysis Program, 2000 Annual Report, NAS Fort Worth JRB, Texas*, prepared for the U.S. Air Force Center for Environmental Excellence by HydroGeologic, Inc. dated March 2001.

**General Comments**

1. The groundwater potentiometric maps have been modified from previous reports to conform to surface water elevations. This corrected potentiometric surface configuration will improve estimates of plume migration direction and velocity, and design of remedial actions.
2. Prior reports lacked a discussion of changes and trends in VOCs from prior sampling rounds. This omission has been corrected, and the resulting summary provides a much improved picture of the evolution of contaminant plumes at the base.
3. Several relatively small benzene hot spots are identified in Figure 5.6. Apparently these will be addressed in other site specific documents. Please include the conclusions from these site specific documents in future annual reports.
4. An additional well is recommended in the upper Paluxy within the TCE hot spot that includes Well WHGLPU001 to confirm low concentrations of TCE beneath the hot spot. See Specific Comment 2 below.

**Specific Comments**

1. Section 2.3.1 - Terrace Alluvium Deposits

This section notes that when drilling the wells into the upper Paluxy sands, the Goodland/Walnut formation was observed to be fractured and appeared to have higher hydraulic conductivities than the Paluxy. Many of the conclusions regarding migration of contaminants from the Terrace Alluvium to the Paluxy are based on the assumption that the Goodland/Walnut is a barrier. According to these observations, this assumption may be incorrect.

2. Figure 5.3 - Trichloroethene Concentrations, Terrace Alluvium, October 2000.

The one upper Paluxy well that shows a small amount of TCE (WHGLPU001) is located within a TCE hot spot in the Terrace Alluvium. Because the Goodland/Walnut was observed to have higher hydraulic conductivities than expected in this area, it is recommended that an additional upper Paluxy well be installed just southeast of HM-123 to confirm low concentrations of TCE in the upper Paluxy beneath the TCE hot spot.

**Final Basewide Groundwater Sampling and Analysis Program, April 2001 Semi-Annual Report, NAS Fort Worth JRB, Texas, September 2001**

**REVIEW COMMENTS**

The following comments were generated from a review of the *Final Basewide Groundwater Sampling and Analysis Program, April 2001 Semi-Annual Report, NAS Fort Worth JRB, Texas*, prepared for the U.S. Air Force Center for Environmental Excellence by HydroGeologic, Inc. dated September 2001.

**The following comments are reproduced from the review of the 2000 Annual Report:**

**General Comments**

1. The groundwater potentiometric maps have been modified from previous reports to conform to surface water elevations. This corrected potentiometric surface configuration will improve estimates of plume migration direction and velocity and design of remedial actions..
2. Prior reports lacked a discussion of changes and trends in VOCs from prior sampling rounds. This omission has been corrected, and the resulting summary provides a much improved picture of the evolution of contaminant plumes at the base.
3. Several relatively small benzene hot spots are identified in Figure 5.6. Apparently these will be addressed in other site specific documents. Please include the conclusions from these site specific documents in future annual reports.
4. An additional well is recommended in the upper Paluxy within the TCE hot spot that includes Well WHGLPU001 to confirm low concentrations of TCE beneath the hot spot.

**The following comment is specific to this Report:**

**Specific Comments**

1. Section 2.3.2 - Goodland/Walnut Aquitard

An additional monitoring well was installed in the Goodland/Walnut aquitard. The report states that its purpose was to characterize the unit. Please include a discussion of the results of the drilling and how they affect the assumption that the Goodland/Walnut protects the Paluxy from contamination in the Terrace Alluvium.

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 Kathleen Hartnett White, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

July 19, 2002

Mr. Michael R. Dodyk, P. E.  
 Restoration Team Chief  
 HQ AFCEE/ERD  
 P.O. Box 27008  
 Fort Worth, TX 76127-0008

RE: Approval of Draft Deed Certification Language, dated March 29, 2002  
 Area of Concern 13 (Building 1145 Oil/Water Separator) - Risk Reduction Standard No. 2  
 NAS Fort Worth JRB, Carswell AFB, Texas  
 TNRCC Solid Waste Registration No. 65004  
 TNRCC Hazardous Waste Permit No. HW-50289  
 EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your Draft Deed Certification Language, dated March 29, 2002. The Draft Deed Certification Language appears to be in order for Carswell to proceed with closure of AOC 13 under TNRCC Risk Reduction Standard (RRS) No. 2, pursuant to Title 30 TAC Chapter 335 Subchapters A and S.

The TNRCC can not issue a final approval of closure of AOC 13 until the public has had an opportunity to provide comment on the investigation results and the proposed corrective measure(s). Carswell must notify the public of the approved RFI Report and the proposed corrective measure (RRS 2 and deed certification) pursuant to the corrective action program. An example of the proper public notice language is enclosed. Carswell should proceed with the following steps:

1. Publish the notice (completed with the correct information) once in its entirety, at your expense, in a newspaper of general circulation which is regularly published or circulated in the county(ies) or the geographical location of the facility;
2. Once the notice is published, please read it carefully and notify us immediately if it contains any errors or omissions that require the corrected version to be re-published; and,
3. Mail, immediately upon publication, an original and one (1) copy of the following items to the TNRCC's Corrective Action Section (MC-127) and one copy to the Waste Program Manager, TNRCC Region 4 Office, 2301 Gravel Dr., Fort Worth, TX 76118-6951.
  - a. a clipping of the published notice; and,
  - b. the original sworn affidavit from the newspaper giving the date on which the notice was published, using the enclosed affidavit form.

Mr. Dodyk  
Page 2  
July 19, 2002

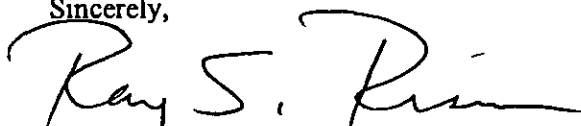
If comments which require clarification are received during the comment period (60 days), the Executive Director of the TNRCC may request Carswell to hold a public meeting if such a meeting might clarify one or more issues concerning the proposed corrective measure(s). If no comments are received within 60 days of public notice, then the TNRCC will issue a letter accepting the proposed corrective measures and directing Carswell to proceed with deed certification. As specified in §335.560, Carswell will be required to submit proof of deed certification to the TNRCC within ninety (90) days from the date of that acceptance letter.

In order to attain RRS No. 2, all industrial solid waste and municipal hazardous waste and waste residues must be at or removed or decontaminated to health based standards and criteria. Contaminants allowed to remain in place in media of concern (i.e., soil, ground water, surface water, air) must not exceed the health based clean up levels as specified in 30 TAC §335.556.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon Carswell to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Final Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit **an original and one copy** of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the Waste Program Manager, TNRCC Region 4 Office in Fort Worth. The TNRCC Solid Waste Registration No. and SWMU No. should be referenced in all submittals.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Waste Program Manager, TNRCC Region 4 Office, Fort Worth

Enclosure 1 - *Notice of Proposed Corrective Measures and Example of Publisher's Affidavit*

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 Kathleen Hartnett White, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

July 19, 2002

Mr. Michael R. Dodyk, P. E.  
 Restoration Team Chief  
 HQ AFCEE/ERD  
 P.O. Box 27008  
 Fort Worth, TX 76127-0008

RE: Approval of Draft Deed Certification Language, dated March 29, 2002  
 SWMU 26 (Landfill 3) - Risk Reduction Standard No. 2  
 NAS Fort Worth JRB, Carswell AFB, Texas  
 TNRCC Solid Waste Registration No. 65004  
 TNRCC Hazardous Waste Permit No. HW-50289  
 EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your Draft Deed Certification Language, dated March 29, 2002. The Draft Deed Certification Language appears to be in order for Carswell to proceed with closure of SWMU 26 under TNRCC Risk Reduction Standard (RRS) No. 2, pursuant to Title 30 TAC Chapter 335 Subchapters A and S.

The TNRCC can not issue a final approval of closure of SWMU 26 until the public has had an opportunity to provide comment on the investigation results and the proposed corrective measure(s). Carswell must notify the public of the approved RFI Report and the proposed corrective measure (RRS 2 and deed certification) pursuant to the corrective action program. An example of the proper public notice language is enclosed. Carswell should proceed with the following steps:

1. Publish the notice (completed with the correct information) once in its entirety, at your expense, in a newspaper of general circulation which is regularly published or circulated in the county(ies) or the geographical location of the facility;
2. Once the notice is published, please read it carefully and notify us immediately if it contains any errors or omissions that require the corrected version to be re-published; and,
3. Mail, immediately upon publication, an original and one (1) copy of the following items to the TNRCC's Corrective Action Section (MC-127) and one copy to the Waste Program Manager, TNRCC Region 4 Office, 2301 Gravel Dr., Fort Worth, TX 76118-6951.
  - a. a clipping of the published notice; and,
  - b. the original sworn affidavit from the newspaper giving the date on which the notice was published, using the enclosed affidavit form.

Mr. Dodyk  
Page 2  
July 19, 2002

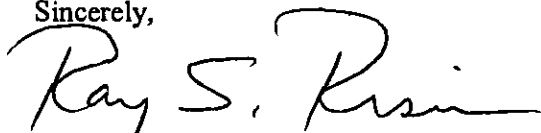
If comments which require clarification are received during the comment period (60 days), the Executive Director of the TNRCC may request Carswell to hold a public meeting if such a meeting might clarify one or more issues concerning the proposed corrective measure(s). If no comments are received within 60 days of public notice, then the TNRCC will issue a letter accepting the proposed corrective measures and directing Carswell to proceed with deed certification. As specified in §335.560, Carswell will be required to submit proof of deed certification to the TNRCC within ninety (90) days from the date of that acceptance letter.

In order to attain RRS No. 2, all industrial solid waste and municipal hazardous waste and waste residues must be at or removed or decontaminated to health based standards and criteria. Contaminants allowed to remain in place in media of concern (i.e., soil, ground water, surface water, air) must not exceed the health based clean up levels as specified in 30 TAC §335.556.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual closure fails to comply with these requirements, the burden remains upon Carswell to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Final Report and conduct a closure inspection of the site.

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit **an original and one copy** of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the Waste Program Manager, TNRCC Region 4 Office in Fort Worth. The TNRCC Solid Waste Registration No. and SWMU No. should be referenced in all submittals.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Waste Program Manager, TNRCC Region 4 Office, Fort Worth

Enclosure 1 - *Notice of Proposed Corrective Measures and Example of Publisher's Affidavit*

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 Kathleen Hartnett White, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

August 9, 2002

Mr. Michael R. Dodyk, P. E.  
 Restoration Team Chief  
 HQ AFCEE/ERD  
 P.O. Box 27008  
 Fort Worth, TX 76127-0008

RE: Request for Information on *Final Report for Phase 4 RCRA Facility Investigation for Oil/Water Separator at Building 1655*, dated March 2002  
 Naval Air Station (NAS) Fort Worth, Texas  
 Joint Reserve Base (JRB) [Carswell AFB], TX  
 TNRCC Solid Waste Registration No. 65004  
 TNRCC Hazardous Waste Permit No. HW-50289  
 EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your Final RCRA Facility Investigation (RFI) Report for the Oil/Water (O/W) Separator at Building 1655, submitted by letter dated April 8, 2002. The Final RFI Report indicates that investigation activities have been completed in accordance with the HSWA Corrective Action requirements of the RCRA permit, and contends that closure under TNRCC Risk Reduction Standard (RRS) No. 2, pursuant to Title 30 TAC Chapter 335 Subchapters A and S can be met.

In order to attain RRS No. 2, all industrial solid waste and municipal hazardous waste and waste residues must be at or removed or decontaminated to health based standards and criteria. Contaminants allowed to remain in place in media of concern (i.e., soil, ground water, surface water, air) must not exceed the health based clean up levels as specified in 30 TAC §335.556.

The TNRCC has completed a review of the Final RFI Report. Based on the information contained in the Final RFI Report and other information available to staff, it appears that the investigation at the O/W Separator at Bldg. 1655 is not complete and indicates that soils remain in-place at RRS 2 and possibly RRS 3 levels, as the full extent has not been determined. Therefore, the TNRCC can not approve the report and its recommendations at this time. However, it appears that manganese may be the only constituent of concern. Since this is a permit authorized RCRA Facility Investigation, Carswell is only required to determine the extent of Appendix VIII constituents and make remedial decisions on those identified as a release. Manganese is not an Appendix VIII constituent. If Carswell intends to "close" this unit, then the Risk Rules would require full extent



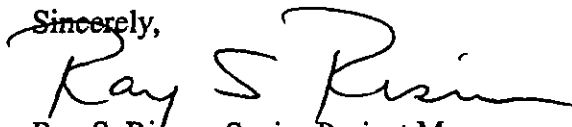
Mr. Michael R. Dodyk  
Page 2  
August 9, 2002

determination. If the report is for RFI purposes only, and there are no Appendix VIII constituents above RRS 1 values, then the TNRCC may be prepared to approved No Further Action. Please submit a letter stating the intentions and/or the correct proposal for this unit within 60 days of the date of this letter.

If Carswell intends to close this unit, required information should include data which demonstrates the determination of full extent, an illustration of the entire area of RRS 2 or RRS 3 closure, and draft deed certification/recording language.

Questions concerning this letter should be directed to me at (512) 239-2333. When responding by mail, please submit **an original and one copy** of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TNRCC Region 4 Office in Fort Worth. The TNRCC Solid Waste Registration No. and SWMU No(s). should be referenced in all submittals.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Waste Program Manager, TNRCC Region 4 Office, Fort Worth



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE  
BROOKS AIR FORCE BASE TEXAS

715 248

August 16, 2002

MEMORANDUM FOR: Ms. Sharon Hill (TNRCC)

FROM: Michael Dodyk  
AFCEE/ERD  
P.O. BOX 27008  
FT WORTH, TX 76127-0008

SUBJECT: PST Registrations at the NAS Fort Worth JRB, Texas  
Facility ID #0009696

Dear Ms. Hill,

On July 25th, our consultant from HydroGeoLogic Inc., contacted you regarding a PST registration issue at the above referenced facility. Per your direction, please accept this correspondence as a request to delist two underground storage tanks (USTs) from the TNRCC PST Registration Database. The Tank IDs for the USTs in question are 1) GCA-1 and 2) GCA-2. The information in the database currently indicates that GCA-1 and GCA-2 were permanently filled in place on an unknown date.

In an effort to identify whether or not these tanks existed, HydroGeoLogic, Inc. performed an investigation of the suspected GCA sites for evidence of the tank locations. The investigation included a site inspection of possible burial locations and the performance of a geophysical survey using a magnetometer for evidence of the abandoned tanks. A search of Air Force and Navy records in conjunction with personnel interviews conducted with base personnel did not provide independent confirmation or reveal any information that supports the existence of these two tanks. Additionally, all USTs at military installations are designated with a numeric building number and not with an alpha-numeric use designator. The investigation yielded no evidence that either GCA UST was ever present. Based on the lack of any physical or documented evidence of the tanks' existence, it is believed that the tanks were never present.

Further review of the TNRCC PST database provided evidence that the GCA tanks were registered in error. The presumed locations of the two GCA USTs are in close proximity to the locations of UST sites 4136 and 4115. Sites 4136 and 4115 both contained USTs that were removed in January 1991. This date corresponds to the suspected "abandoned in place" date of the GCA tanks. In addition, Building 4115 (UST4115-1) is identified on the base records as "Old GCA Site." The removed UST at Building 4136 (UST4136-1) is not shown on the UST registration data base but is located near the second presumed GCA location. An environmental investigation at PST sites 4136 and 4115 is in progress and presently under review by the TNRCC Remediation Division. The TNRCC Remediation Division has advised us to contact your office to correct the registration listings.

Based on this information, the registration of the two USTs appears to have been made in error, and therefore AFCEE requests that the USTs be removed from your database. Written confirmation of this request is appreciated.



Printed on Recycled Paper

Please do not hesitate to contact me at (817) 782-7167 if you have any questions, comments, or need additional information regarding this request.

Sincerely,



MICHAEL R DODYK, P.E.  
Restoration Team Chief  
NAS JRB Ft Worth

cc:

Mr. Don Picklen  
HQ AFCEE/ERD  
3207 North Rd.  
Brooks AFB, TX 78235-5344

Ms. Audric Medina  
Booz Allen Hamilton  
300 Convent St.  
San Antonio, TX 78205

Mr. Tim Sewell  
TNRCC Region IV  
2301 Gravel Dr.  
Fort Worth, TX 76118-6951

Ms. Paula Siems Jackson  
Coordinator, Team II  
TNRCC, Petroleum Storage Tank Division  
Building D, MC137  
12100 Park 35 Circle  
Austin, TX 78753

Robert J. Huston, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 Kathleen Hartnett White, *Commissioner*  
 Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

August 16, 2002

Mr. Michael Dodyk  
 Restoration Team Chief  
 HQ AFCEE/ERD  
 P.O. Box 27008  
 Fort Worth, TX 76127-0008

**CERTIFIED MAIL #9514**  
**RETURN RECEIPT REQUESTED**

RE: Approval of *Final RCRA Facility Investigation Summary Addendum for Bldgs. 1015, 1027, 1060, 1064, 1190, 1191, 1194, 1414, 1602 and 4210*, dated April 9, 2002  
 Oil/Water Separators - Risk Reduction Standard (RRS) No. 2  
 NAS Fort Worth JRB, Carswell AFB, Texas  
 TNRCC Solid Waste Registration No. 65004  
 TNRCC Hazardous Waste Permit No. HW-50289  
 EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your *Final RCRA Facility Investigation Summary Addendum* (RFI Summary Addendum) for the Oil/Water Separators (O/WSs) listed above, dated April 9, 2002. The RFI Summary Addendum indicates that RFI and remediation/closure activities have been completed, in accordance with the Hazardous Waste Permit and the TNRCC Risk Reduction Standard (RRS) No. 2 closure requirements, pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S.

In order to attain RRS No. 2, all industrial solid waste and municipal hazardous waste and waste residues must be removed or decontaminated to health based standards and criteria. Contaminants allowed to remain in place in media of concern (i.e., soil, ground water, surface water, air) must not exceed the health based clean up levels as specified in 30 TAC §335.556.

The TNRCC has completed a review of the RFI Summary Addendum. It contains documentation indicating that investigation and/or cleanup of the soil at the O/WSs at Bldgs. 1015 (SWMU 47), 1027 (SWMU 44), 1160 (AOC 11), 1064 (AOC 10), 1190 (SWMU 52), 1191 (SWMU 37), 1194 (SWMU 35), 1414 (SWMU 41), 1602 (part of SWMU 66), and 4210 (AOC 12) are complete and have attained RRS No. 2 such that no post-closure care or engineering control measures are required. Based upon the information contained in the RFI Summary Addendum and other information available to staff, it appears that the RFI has been completed and cleanup has achieved RRS No. 2. However, the RFI Summary Addendum does not contain information that is proposed to fulfill the requirements of 30 TAC §335.560(b) relating to deed certification. Please submit draft deed certification language for each area as exemplified in 30 TAC § 335.59 Appendix III [include a map of the area(s) of soil to be deed certified] for approval by the TNRCC. Please note that while

Mr. Dodyk  
Page 2  
August 16, 2002

preparing the list of COCs for each area to be attached to the deed certification, it appears that lead should be included for Building 1027 O/WS and copper for Building 1194 and 1414 O/WSs. Once the draft language is submitted, the TNRCC will review it, and if approvable, direct AFCEE to proceed with public notice, followed by deed certification.

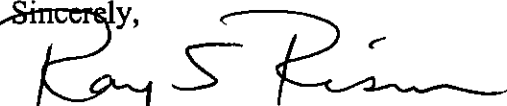
It appears from the new data presented that groundwater beneath O/WSs at Buildings 1191 and 1194 is contaminated with TCE which was released from Air Force Plant # 4. The TNRCC has previously agreed that this contaminated groundwater could be addressed through the Superfund Record of Decision document. Please ensure that all future maps show the Air force Plant #4 contaminated groundwater plume to be below these units.

During the upcoming permit renewal, AFCEE may not exclude these units from the Corrective Action portion of the permit, but could include a status statement that the RFIs have been completed and closures have been approved at RRS 2.

Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If any of these units fail to comply with these requirements, the burden remains upon AFCEE to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Report and conduct an inspection of the any of the units.

Please submit **an original and one copy** of the draft deed language for each unit to the Corrective Action Section at Mail Code MC-127 within 90 days of the date of this letter with an additional copy submitted to the TNRCC Region 4 Office in Fort Worth. The TNRCC Solid Waste Registration Number, TNRCC Hazardous Waste Permit Number, EPA ID Number, and appropriate SWMU Nos. and O/WS Bldg. Nos. should be referenced in all submittals. Questions concerning this letter should be directed to me at (512) 239-2333.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Mr. Don Ficklen, Remedial Program Manager, HQ AFCEE/ERD  
3207 North Road, Brooks AFB, TX 78235  
Mr. Gary W. Miller, Federal Facility Team, EPA Region VI Office - Dallas  
Waste Program Manager, TNRCC Region 4 Office - Fort Worth

Robert J. Huston, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
Kathleen Hartnett White, *Commissioner*  
Jeffrey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

August 30, 2002

Mr. Michael Dodyk  
Restoration Team Chief  
HQ AFCEE/ERD  
P.O. Box 27008  
Fort Worth, TX 76127-0008

RE: Approval of *Final Site Investigation Report*, dated April 2002  
Area of Concern 19 - Risk Reduction Standard (RRS) No. 2  
NAS Fort Worth JRB, Carswell AFB, Texas  
TNRCC Solid Waste Registration No. 65004  
TNRCC Hazardous Waste Permit No. HW-50289  
EPA ID No. TX0571924042

Dear Mr. Dodyk:

The Texas Natural Resource Conservation Commission (TNRCC) received your *Final Site Investigation Report* for Area Of Concern (AOC) 19, submitted by letter dated April 30, 2002. The Report indicates that investigation and remediation/closure activities have been completed, in accordance with the Hazardous Waste Permit and the TNRCC Risk Reduction Standard (RRS) No. 2 closure requirements, pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S.

In order to attain RRS No. 2, all industrial solid waste and municipal hazardous waste and waste residues must be removed or decontaminated to health based standards and criteria. Contaminants allowed to remain in place in media of concern (i.e., soil, ground water, surface water, air) must not exceed the health based clean up levels as specified in 30 TAC §335.556.

The TNRCC has completed a review of the Report. It contains documentation indicating that investigation and/or cleanup of the soil at AOC 19 (a suspected Fire Training Facility) are complete and have attained RRS No. 2 such that no post-closure care or engineering control measures are required. Based upon the information contained in the Report and other information available to staff, it appears that the investigation has been completed and cleanup can achieve RRS No. 2. In addition, the Report contains information that is proposed to fulfill the requirements of 30 TAC §335.560(b) relating to deed certification. The draft deed certification language provided in Appendix H is generally acceptable; however, when the deed certification is recorded in the county records, please include as attachments, the Notice of Registration and a description of the facility,

Mr. Dodyk  
Page 2  
August 30, 2002

as found in the example language in 30 TAC § 335.59 Appendix III. Also, please include a map of the area(s) to be deed certified. Finally, please include any metal COCs as appropriate. The TNRCC points out that this RRS 2 closure is for the unit and soils only. It appears from the data presented that groundwater beneath AOC 19 is contaminated with TCE which was released from Air Force Plant # 4. The TNRCC has previously agreed that this contaminated groundwater could be addressed through the Superfund Record of Decision document. Please ensure that all future maps show the Air Force Plant #4 contaminated groundwater plume to be below this unit.

The TNRCC can not issue a final determination until the public has had an opportunity to provide comment on the results of the investigation and the proposed corrective measure. Carswell shall notify the public of the results of the investigation and the proposed corrective measure pursuant to the corrective action program. An example of the proper public notice language is enclosed. Carswell should proceed with the following steps:

1. Publish the notice (completed with the correct information) once in its entirety, at your expense, in a newspaper of general circulation which is regularly published or circulated in the county(ies) or the geographical location of the facility;
2. Once the notice is published, please read it carefully and notify us immediately if it contains any errors or omissions that require the corrected version to be re-published; and,
3. Mail, immediately upon publication, an original and one (1) copy of the following items to the TNRCC's Corrective Action Section (MC-127) and one copy to the Waste Program Manager, TNRCC Region 4 Office, Ft. Worth, Texas:
  - a. a clipping of the published notice; and,
  - b. the original sworn affidavit from the newspaper giving the date on which the notice was published, using the enclosed affidavit form.

If comments which require clarification are received during the comment period, the Executive Director of the TNRCC may request Carswell to hold a public meeting if such a meeting might clarify one or more issues concerning the proposed corrective measure(s). Once that is resolved or if no comments are received, then the TNRCC will require Carswell to proceed with deed certification. Upon acceptance of the proof of deed certification, the TNRCC will transmit a final letter releasing Carswell from post-closure care responsibilities for AOC 19.

During the upcoming permit renewal, Carswell may not exclude this unit from the Corrective Action portion of the permit, but could include a status statement that the investigation has been completed and closures have been approved at RRS 2, pending public notice.

Mr. Dodyk  
Page 3  
August 30, 2002

Please be aware that it is the continuing obligation of persons associated with a site to assure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If any of these units fail to comply with these requirements, the burden remains upon Carswell to take any necessary and authorized action to correct such conditions. A TNRCC field inspector may review your Report and conduct an inspection of the any of the units.

Questions concerning this letter should be directed to me at (512) 239-2333. Please submit **an original and one copy** of the proof of public notice to the Corrective Action Section at Mail Code MC-127 within 60 days of the date of this letter with an additional copy submitted to the TNRCC Region 4 Office in Fort Worth. The TNRCC Solid Waste Registration Number, TNRCC Hazardous Waste Permit Number, EPA ID Number, and appropriate AOC No. should be referenced in all submittals.

Sincerely,



Ray S. Risner, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Natural Resource Conservation Commission

RSR/rsr

cc: Mr. Don Ficklen, Remedial Program Manager, HQ AFCEE/ERD  
3207 North Road, Brooks AFB, TX 78235  
Mr. Gary W. Miller, Federal Facility Team, EPA Region VI Office - Dallas  
TNRCC Registration and Reporting Section, R&E Division (MC-129)  
Waste Program Manager, TNRCC Region 4 Office - Fort Worth

Enclosure(s): Enclosure 1 - Example Notice Language  
Enclosure 2 - Publisher's Affidavit



**FINAL PAGE**



**ADMINISTRATIVE RECORD**

**FINAL PAGE**